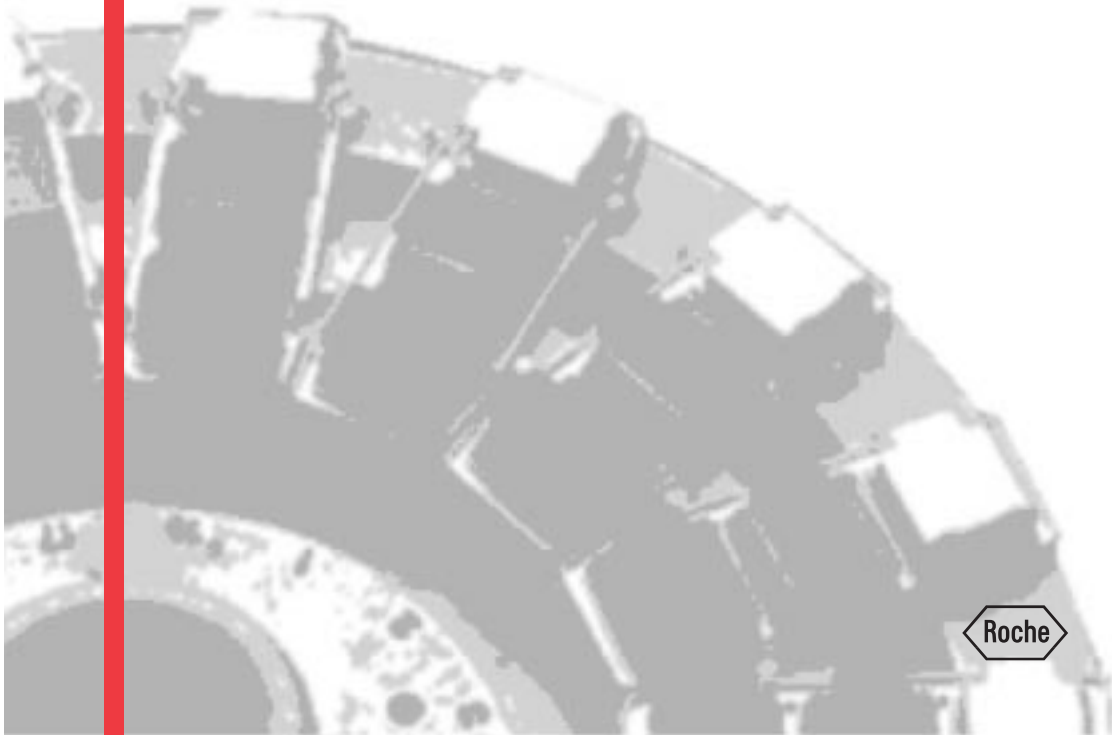

User's Guide

Roche Diagnostics Elecsys® 2010 System Operator's Manual



User's Guide

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Chapter 1

General Troubleshooting

1.1 Troubleshooting Procedure

Introduction

To identify and isolate problems effectively, you must understand the theory of operation, operating procedures, emergency procedures and chemistry reaction descriptions covered in this manual. Follow a logical and sequential series of steps to isolate a problem into one or more of the following areas:

Chemistry problems:

- reagent
- instrument
- sample
- operator error.

Instrument problems:

- electrical/electronic
- mechanical
- operator error.

Software problems:

- faulty system parameter on disk or disk load error
- operator error.

Facility problems:

- heat
- humidity
- power
- water.

Your primary troubleshooting responsibility lies in the following areas:

- reagent preparation and storage
- sample considerations
- general software operations
- basic component replacement
- operator technique in overall operation of the instrument
- maintenance.



The basic operator is not responsible for troubleshooting electrical problems, except as covered in the operator's manual. Do not attempt removal of electronic components.

1.1 Troubleshooting Procedure

When troubleshooting, review the alarms and isolate the problem to the area denoted by the alarms. In many cases, you may be able to find the problem, correct it and resume test processing.

The remainder of this section provides you with instructions and guidelines to aid in isolating problems.

1.2 Immunoassay Troubleshooting

Introduction

Mechanical problems are evident when the analyzer displays an alarm message. A chemistry problem may display a data flag, or may only become evident with an unexpected result.

Deciding that a problem exists is the first step in the process. The following situations may require troubleshooting:

- error codes on calibration documentation
- data flags on control or patient samples
- quality control sample results outside established range
- patient tests with unexpected results.

When troubleshooting a problem, first access the MESSAGES screen (UTIL folder) and print a message history. Print the last 10-20 messages and use this report to assist you.

To troubleshoot effectively, eliminate extraneous information and pinpoint the problem. Use the calibration documentation, quality control results or patient results to decide which of the following conditions apply, and perform the associated checks outlined in the following sections:

- single sample affected
- single assay affected.

Reagents, Calibrators and Controls

Sometimes conditions arise that cannot be detected by the analyzer. These conditions do not generate alarms and therefore must be detected by the operator. When one or more of these conditions are present, test results can be extremely high, low or erratic.

To identify the cause of high, low or erratic test results, first verify the handling of reagents, calibrators and controls by answering the following questions.

When preparing or handling reagents, calibrators and controls, ***always read the package insert.***

When handling reagents:

- Has the catalog number changed?
- Has the lot number changed? Does it match the lot number in the 'Reagent Details' pop-up window?
- Was the reagent stored appropriately?

1.2 Immunoassay Troubleshooting

When reconstituting/handling calibrators:

- Has the lot number changed?
- What is the correct reconstitution volume?
- Was the correct amount of time allowed for reconstitution?
- Was the CalSet at room temperature prior to operation?
- What is the recommended storage?
- What is the expiration date of the calibrator lot?
- What is the expiration date of the reconstituted material?
- Was fresh, bacteria-free, deionized water used in reconstitution?
- Were volumetric pipettes used (where appropriate)?

When reconstituting controls:

- What is the correct reconstitution volume?
- Was the correct amount of time allowed for reconstitution?
- What is the recommended storage?
- What is the expiration date of the control lot?
- What is the expiration date of the reconstituted material?
- Was fresh, bacteria-free, deionized water used in reconstitution?
- Were volumetric pipettes used (where appropriate)?

Single Sample

Check for:

- sufficient sample volume, including adequate sample container dead volume
- sample integrity (fibrin, hemolysis, icterus, lipemia)
- appropriate type of sample (serum, plasma)
- bubbles in the sample cup or tube
- sample reproducibility
- proper tube placement in the sample carrier.

Single Assay

Check for:

- calibrators not at room temperature prior to operation
- improperly prepared calibrators
- expired reagent(s)
- expired calibrators
- calibrators used more than five times
- correct lot number in the 'Reagent Details' pop-up window.

1.3 General Instrument Troubleshooting

Introduction

When troubleshooting a problem, first access the MESSAGES screen (UTIL folder) and print a message history. Print the last 10-20 messages and use this report to assist you.

Electric power is not available

If you are having problems turning the analyzer on, follow the steps below:

1. Are the operation ON/OFF switch and circuit breaker turned OFF?
If **yes**, go to step 2.
If **no**, go to step 3.
2. Turn on both power switches.
3. Is the power cable plug disconnected at either the instrument or the outlet?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Firmly connect the power cable.
5. Is the outlet working?
If **yes**, go to step 9.
If **no**, go to step 6.
6. Check the circuit breaker in the laboratory distribution box.
7. Is the line voltage adequate?
If **yes**, go to step 9.
If **no**, go to step 8.
8. Use line power of the proper line voltage.
9. Call Technical Support.

If for any other reason you have problems with the power to your analyzer, call Technical Support.

Cannot access another software screen

If you are unable to access another software screen, follow the steps below:

1. Power OFF the analyzer at the circuit breaker.
2. Check the cabling between the touchscreen and the analyzer.
3. Power ON the analyzer at the circuit breaker. If you are still unable to access another screen, then call Technical Support.

1.3 General Instrument Troubleshooting

The touchscreen does not come on

If you are having problems with the touchscreen, follow the steps below:

1. Is the operation ON/OFF switch on the front of the analyzer turned off?
If **yes**, go to step 2.
If **no**, go to step 3.
2. Turn the operation switch ON. Does the touchscreen come on?
If **no**, go to step 3.
3. Is the cable between the touchscreen and the instrument disconnected?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Firmly connect the cable.
5. Call Technical Support.

The touchscreen is hard to see

If the touchscreen is difficult to see, follow the steps below:

1. Is the touchscreen dirty?
If **yes**, go to step 2.
If **no**, go to step 3.
2. Gently wipe the surface with a dry cloth.
3. Is the ambient lighting too bright?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Either reduce the brightness of the ambient lighting or change the direction of the adjustable monitor face.
5. Call Technical Support.

1.3 General Instrument Troubleshooting

The solid waste tray does not come out or produces irregular sounds

If you are having problems removing the solid waste tray or unusual sounds are coming from the solid waste tray area, follow the steps below:

1. Are tray and liner properly seated?
If **yes**, go to step 3.
If **no**, go to step 2.
2. Reseat the tray and liner.
3. Are there stray cups or tips behind the tray?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Remove the stray cups and tips and replace the tray and liner.
5. Call Technical Support.

The reagent disk cover does not open/close

If you are having problems opening or closing the reagent disk cover, follow the steps below:

1. The reagent disk cover is keyed. Is the reagent disk cover properly oriented for placement?
If **yes**, go to step 3.
If **no**, go to step 2.
2. Make sure that the reagent disk cover fits into the key before locking.
3. Is there an obstacle around the cover?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Remove the obstacle.
5. Call Technical Support.

1.3 General Instrument Troubleshooting

The sample disk does not move

If the sample disk does not move properly, follow the steps below:

1. Is the sample disk seated properly?
If **yes**, go to step 3.
If **no**, go to step 2.
2. Remove and reseal the sample disk.
3. Is there an obstacle around the sample disk?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Remove the obstacle.
5. Call Technical Support.

Trouble placing a reagent pack on the reagent disk

If you are having problems placing a reagent pack on the reagent disk, follow the steps below:

1. Reagent packs are keyed for proper placement. Is the reagent pack properly oriented?
If **yes**, go to step 3.
If **no**, go to step 2.
2. Reorient the reagent pack (i.e., the white cap and the bar code facing toward the outside of the reagent disk).
3. Is there an obstacle beneath the reagent disk?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Remove the obstacle.
5. Is the reagent pack damaged?
If **yes**, go to step 6.
If **no**, go to step 7.
6. Replace the reagent pack.
7. Call Technical Support.

1.3 General Instrument Troubleshooting

Trouble replacing a tip/cup tray

If you are having problems replacing a tip or cup tray, follow the steps below:

1. Tip and cup trays are keyed for proper placement. Is the tip or cup tray properly oriented?
If **yes**, go to step 3.
If **no**, go to step 2.
2. Remove and reseal the tip or cup tray.
3. Is there an obstacle around the tray?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Remove the obstacle.
5. Is the tray damaged or deformed?
If **yes**, go to step 6.
If **no**, go to step 7.
6. Replace the tray.
7. Call Technical Support.

1.3 General Instrument Troubleshooting

Trouble replacing a system reagent (ProCell or CleanCell)

If you are having problems replacing a ProCell or CleanCell reagent bottle, follow the steps below:

1. The system reagent bottles are keyed for proper placement. Are you placing the bottle in its appropriate position?

If **yes**, go to step 3.

If **no**, go to step 2.

2. Remove the bottle and check the position before placing the reagent into its proper place (i.e., ProCell (PC) in positions 1, 3 and CleanCell (CC) in positions 2, 4).

3. Is there an obstacle beneath the system reagent bottle?

If **yes**, go to step 4.

If **no**, go to step 5.

4. Remove the obstacle.

5. Is the system reagent bottle damaged or deformed?



Sometimes the system reagent bottle appears to bulge until the cap is opened. You may also be able to fit the bottle in the compartment after opening the cap.

If **yes**, go to step 6.

If **no**, go to step 7.

6. Replace the system reagent bottle.

7. Call Technical Support.



1.3 General Instrument Troubleshooting

Trouble replacing the distilled water container

If you are having problems replacing the distilled water container, follow the steps below:

1. The distilled water container must be properly oriented for placement (i.e., verify that the cap is closest to the rear of the analyzer. Is the container facing the right way?
If **yes**, go to step 3.
If **no**, go to step 2.
2. Reseat the container and gently push down until you feel a snap indicating that the bottle is connected.
3. Is there an obstacle around the distilled water container?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Remove the obstacle.
5. Is the distilled water container damaged or deformed?
If **yes**, go to step 6.
If **no**, go to step 7.
6. Replace the distilled water container.
7. Call Technical Support.

1.3 General Instrument Troubleshooting

Trouble replacing the solid waste tray

If you are having problems replacing the solid waste tray, follow the steps below:

1. Does the Clean-Liner fit properly (i.e., the opening in the sliding door must point to the rear of the analyzer) and is not damaged or bent?
If **yes**, go to step 3.
If **no**, go to step 2.
2. Try a different Clean-Liner.
3. Is there an obstacle around the solid waste tray?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Remove the obstacle.
5. Is the solid waste tray damaged or deformed?
If **yes**, go to step 6.
If **no**, go to step 7.
6. Replace the solid waste tray.
7. Call Technical Support.

Empty liquid waste container causes an alarm

If your empty liquid waste container gives an alarm stating that the container is full, follow the steps below:

1. Is there an obstacle causing the tray on which the container rests, to remain in the down position (i.e., is it still activating the sensor)?
If **yes**, go to step 2.
If **no**, go to step 3.
2. Remove the obstacle.
3. Call Technical Support.

1.3 General Instrument Troubleshooting

S/R probe or sipper probe tip does not descend to the liquid surface

If the S/R probe or sipper probe tip does not descend to the liquid surface, follow the steps below:

1. Are there bubbles on the liquid surface?
If **yes**, go to step 2.
If **no**, go to step 3.
2. Eliminate the bubbles in the sample container with an applicator stick.
3. Did the probe tip touch something during descent?
If **yes**, go to step 4.
If **no**, go to step 5.
4. Remove the obstacle.
5. There could be a problem with water quality. Access the VOLTAGE MONITOR screen (UTIL folder). If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe.
7. If the voltage is > 2.00 V, call Technical Support.

Results do not print automatically

If results do not print automatically, follow the steps below:

1. Is the printer powered ON and on line (i.e., the green light above "Ready" is illuminated)?
If **yes**, go to step 3.
If **no**, go to step 2.
2. Turn the printer ON. Verify the green "Ready" light is on.
3. Is automatic printing selected (button is light blue) on the DOCUMENTATION SETUP screen (UTIL folder)?
If **yes**, go to step 5.
If **no**, go to step 4.
4. Specify a proper printing mode by referring to the description in Chapter 6, Util Screen – *Software Guide*.
5. Call Technical Support.

1.3 General Instrument Troubleshooting

Bubbles in the pipettors

If you see bubbles in either the S/R pipettor or the sipper pipettor, follow the steps below:

1. Are there bubbles in the S/R pipettor?
If **yes**, go to step 3.
If **no**, go to step 2.
2. Are there bubbles in the sipper pipettor?
If **yes**, go to step 4.
3. Perform an S/R pipettor prime from the MAINTENANCE screen (UTIL folder). Enter 10 cycles. Go to step 5.
4. Perform a sipper pipettor prime from the MAINTENANCE screen (UTIL folder). Enter 10 cycles. Follow this by a Measuring Cell preparation. Enter 5 cycles.
5. Are there still bubbles in the pipettor?
If **yes**, repeat step 3 or 4 for the appropriate pipettor.
6. After the second pipettor prime, do bubbles remain in the pipettor?
If **yes**, go to step 7.
7. Call Technical Support.

Notes

Chapter 2

Data Alarms

2.1 Data Alarms

Data Alarms Table

The data alarms table on the following pages lists several pieces of information. Included in the table is an alarm level. This number indicates the priority of the alarm. The priority is from 1 to 8, with 1 being the highest priority and 8 being the lowest priority. Several data alarms may occur for a sample; however, only the alarm with the highest priority is displayed on the screen or printed next to the result. If two or more data alarms for a result occur with the same priority, the one that occurred first goes with the result. Any other data alarms with lower priorities that may have been generated cannot be printed or viewed.

The **Message** column shows the data alarm message displayed on the on-line result printout. The **Cause or Description** column tells you what the alarm means, or what caused the alarm condition. The **Remedy** column lists suggestions to correct the problem.

Three additional columns provide information as to whether you can expect to obtain a result for the sample. The **No Result** column shows a check mark if the alarm causes the system to give no result for the sample. The **System Block** column shows a check mark if the alarm causes the system to block the result. The **Data Alarm** column shows the data alarm that accompanies the result.

Alarm Abbreviations

The following table is a brief listing of the alarm levels and their abbreviations. For detailed information on the alarm levels, refer to Chapter 3, Instrument Alarms.

Alarm Level	Abbreviation
Emergency Stop	E. Stop
Stop	Stop
Partial Stop	P. Stop
Analyzer Stop	A. Stop
Line Stop	L. Stop
Sampling Stop	S. Stop
Rack Stop	R. Stop

2.1 Data Alarms

Classification of Results

Results can be classified in three ways:

Not Flagged and Not Blocked

These results are automatically released by the system; a valid result within the expected values range.

Flagged and Not Blocked

These results are automatically released by the system; a valid result, but it is either outside the expected values range or outside the measuring range.

Flagged and Blocked

These results are system blocked and cannot be released by the operator. All system blocked samples have a result of "No value."

2.1 Data Alarms

Alarm No.	Alarm Level	Message	Cause or Description	Remedy	No Result?	System Block?	Data Alarm
1	1	Power failure-operation stopped	Test cancelled due to power failure or power off. Sample(s) may be excluded; refer to your printout.	Correct condition and rerun any excluded samples.	✓	✓	1S
2	2	E. Stop-operation stopped	Test cancelled due to E. Stop. Sample(s) may be excluded; refer to your printout.	Correct alarm condition and rerun any excluded samples.	✓	✓	2S
3	3	Stop-operation stopped	Test cancelled due to Stop. Sample(s) may be excluded; refer to your printout.	Correct alarm condition and rerun any excluded samples.	✓	✓	3S
4	4	P. Stop/A. Stop-operation stopped	Test cancelled due to P. Stop, A. Stop or L. Stop. Sample(s) may be excluded; refer to your printout.	Correct alarm condition and rerun any excluded samples.	✓	✓	4S
5	4	S. Stop-operation stopped	Sampling is stopped due to S. Stop. Sample(s) in process will be completed.	Correct alarm condition and continue with sample(s) to be processed.	✓	✓	5S
6	5	Error handling-operation stopped	Test cancelled due to error recovery process. Sample(s) may be excluded; refer to your printout.	Rerun any excluded samples.	✓	✓	6S
7	6	Sample short	The sample volume is insufficient.	a. Fill the sample container with the sample, then rerun. Refer to Section 2.7, Technical Data – <i>Reference Guide</i> , for sample container dead volumes. b. If the sample visually appears sufficient, call Technical Support.	✓	✓	7S

Alarm No.	Alarm Level	Message	Cause or Description	Remedy	No Result?	System Block?	Data Alarm
8	6	Assay reagent short	The assay reagent volume is insufficient.	a. Check the number of tests remaining on the INVENTORY screen. Replace the reagent pack, if necessary. b. Perform a Reagent Scan after reagent replacement; if the alarm recurs, call Technical Support.	✓	✓	8S
9	6	Diluent short	The diluent volume is insufficient.	a. Check the number of mls remaining on the INVENTORY screen. Replace the diluent, if necessary. b. Perform a Reagent Scan after diluent replacement; if the alarm recurs, call Technical Support.	✓	✓	9S
10	6	Pretreatment reagent short	The pretreatment reagent volume is insufficient.	a. Check the number of tests remaining on the INVENTORY screen. Replace the pretreatment reagent, if necessary. b. Perform a Reagent Scan after reagent replacement; if the alarm recurs, call Technical Support.	✓	✓	10S
11	—	Not active in this version.					
12	7	Reagent disk temperature out of range	Reagent disk temperature is out of range. An initial check occurs at 30 minutes after power ON at the circuit breaker. The temperature is checked continuously thereafter.	a. Verify that the reagent disk cover is securely in place. b. Check that the fans at the back of the analyzer are operating normally and are free of obstructions. c. Check that the room temperature is between 18 °C and 32 °C. d. If the alarm recurs, call Technical Support.			12

2.1 Data Alarms

Alarm No.	Alarm Level	Message	Cause or Description	Remedy	No Result?	System Block?	Data Alarm
13	7	Incubator temperature out of range	Incubator temperature is out of range. An initial check occurs at 30 minutes after power ON at the circuit breaker. The temperature is checked continuously thereafter.	a. Check that the fans at the back of the analyzer are operating normally and are free of obstructions. b. Check that the room temperature is between 18 °C and 32 °C. c. If the alarm recurs, call Technical Support.			13
14	7	Measuring cell temperature out of range	Measuring cell temperature is out of range. An initial check occurs at 30 minutes after power ON at the circuit breaker. The temperature is checked continuously thereafter.	a. Verify the temperature of ProCell/CleanCell. b. Check that the fans at the back of the analyzer are operating normally and are free of obstructions. c. Check that the room temperature is between 18 °C and 32 °C. d. If the alarm recurs, call Technical Support.			14
15	7	PC/CC temperature out of range	ProCell/CleanCell temperature is out of range. An initial check occurs at 30 minutes after power ON at the circuit breaker. The temperature is checked continuously thereafter.	a. Check that the fans at the back of the analyzer are operating normally and are free of obstructions. b. Check that the room temperature is between 18 °C and 32 °C. c. If the alarm recurs, call Technical Support.			15
16	6	PC/CC short	ProCell/CleanCell volume is insufficient.	a. Check the remaining volume on the INVENTORY screen. Replace the system reagent, if necessary. b. If the alarm recurs after replacement, call Technical Support.	✓	✓	16S
17	7	ADC data abnormal	Analog to digital converter (ADC) data is abnormal.	Call Technical Support.	✓	✓	17S
18	—	Not active in this version.					
19	—	Not active in this version.					
20	—	Not active in this version.					

2.1 Data Alarms

Alarm No.	Alarm Level	Message	Cause or Description	Remedy	No Result?	System Block?	Data Alarm
21	—	Not active in this version.					
22	—	Not active in this version.					
23	—	Not active in this version.					
24	6	Calculation error	Internal calculation error occurred.	Rerun the sample.	✓	✓	24S
25	6	No calibration data	Samples were positioned on the sample disk ahead of calibrators for a test for which there is no valid calibration stored in the system (i.e., a new assay on the analyzer).	Rerun the samples after there is a valid L-Cal or R-Cal stored in the system.	✓	✓	25S
26	8	Previous calibration used	Previous calibration data was used for result calculation. The attempted calibration was questionable or failed.	a. Check the calibrators and reagents. Repeat the calibration. b. Rerun the samples after a successful calibration is obtained.			26
27	S	System blocked					S
28	B	User blocked					B
29	R	User released					R
30	6	Premature LLD signal-Sample	A premature LLD signal was detected during sample pipetting, causing the S/R probe to hover over the sample.	a. Check for bubbles in the sample. b. Rerun the affected sample(s). c. If the error recurs, call Technical Support.	✓	✓	30S
31	6	Premature LLD signal-R. Disk	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the reagent pack.	a. Wipe dry the lids on the affected reagent pack. b. Check for bubbles in the affected reagent pack. c. Rerun the affected sample(s). d. If the error recurs, call Technical Support.	✓	✓	31S

2.1 Data Alarms

Alarm No.	Alarm Level	Message	Cause or Description	Remedy	No Result?	System Block?	Data Alarm
32	6	Premature LLD signal-R. Disk	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the diluent reagent pack.	a. Wipe dry the lids on the affected reagent pack. b. Check for bubbles in the affected reagent pack. c. Rerun the affected sample(s). d. If the error recurs, call Technical Support.	✓	✓	32S
33	6	Premature LLD signal-R. Disk	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the pretreatment reagent pack.	a. Wipe dry the lids on the affected reagent pack. b. Check for bubbles in the affected reagent pack. c. Rerun the affected sample(s). d. If the error recurs, call Technical Support.	✓	✓	33S
34	—	Not active in this version.					
35	6	Assay reagent bubble detected	A bubble was detected during reagent pipetting.	Remove bubbles with an applicator stick and rerun the affected sample.	✓	✓	35S
36	6	Diluent bubble detected	A bubble was detected during diluent pipetting.	Remove bubbles with an applicator stick and rerun the affected sample.	✓	✓	36S
37	6	Pretreatment bubble detected	A bubble was detected during pretreatment pipetting.	Remove bubbles with an applicator stick and rerun the affected sample.	✓	✓	37S
38	6	PC/CC bubble detected	A bubble was detected during ProCell or CleanCell pipetting.	Remove bubbles with an applicator stick and rerun the affected sample.	✓	✓	38S
39	—	Not active in this version.					
40	6	PC level out of range	During run preparation, the ProCell count level was out of range. The ProCell signal was < 200 or > 400 counts. The ProCell has evaporated or may be contaminated.	a. Check for bubbles in the ProCell bottle. b. Try a new bottle of ProCell. c. Rerun all flagged samples. d. If the error recurs, call Technical Support.			40

2.1 Data Alarms

Alarm No.	Alarm Level	Message	Cause or Description	Remedy	No Result?	System Block?	Data Alarm
41	6	PC level check failed	ProCell liquid level check failed. The ProCell volume was inadequate for run preparation.	a. Replace the low volume bottle with a new bottle. b. Rerun all flagged samples. c. If the error recurs, call Technical Support.			41
42	6	Measuring cell current out of range	The measuring cell current was out of range when checked during run preparation.	a. Perform a Liquid Flow Cleaning from the MAINTENANCE screen (UTIL folder). Refer to Section 4.7, Perform Liquid Flow Cleaning for details. b. Rerun all flagged samples. c. If the error recurs, call Technical Support.			42
43	6	Measuring cell current check failed	Liquid level check failed. The ProCell volume was inadequate for run preparation.	a. Replace the low volume bottle with a new bottle. b. Rerun all flagged samples. c. If the error recurs, call Technical Support.			43
44	6	PC/CC temperature unstable	ProCell/CleanCell temperature was unstable.	ProCell and CleanCell must be at 28 °C before operation. Either bring the reagent to temperature or place on the analyzer approximately 15 minutes prior to operation.			44
45	6	Abnormal aspiration	Either the sample volume was insufficient or a clot was detected during sample pipetting.	a. Check sample volume. b. Check sample for fibrin, remove any clots and rerun.	✓	✓	45S
46	6	Potential carryover	Carryover from the previous sample may have occurred.	Rerun the sample.			46
47	5	Bar code sample ID error	The sample ID that was scanned just prior to pipetting is different from the ID scanned during the sample scan. All tests for the sample were cancelled.	Verify that sample tubes are not removed until the STATUS screen reads "Proc" or "Compl."	✓	✓	47S

2.1 Data Alarms

2.1 Data Alarms

Alarm No.	Alarm Level	Message	Cause or Description	Remedy	No Result?	System Block?	Data Alarm
48	6	Below expected value range	The sample concentration was below the lower limit of the expected values.	For information only.			48
49	6	Above expected value range	The sample concentration was above the upper limit of the expected values.	For information only.			49
50	6	Below measuring range	The sample concentration was below the lower limit of the measuring (reportable) range.	Report the result as less than the LDL of the assay.			50
51	6	Above measuring range	The sample concentration was above the upper limit of the measuring (reportable) range.	Dilute the sample and reassay the diluted sample.			51
52	7	Expired reagent pack	An expired reagent pack was used for the determination.	For information only.			52

2.1 Data Alarms

Data Flags

There are three data flags that appear in conjunction with the previous data alarms. These flags denote that the data is blocked or released. They are suffixed to the numeric alarms and are displayed on the RESULTS screen and printed on the patient reports. The flags are as follows:

- S blocked by the system
- B blocked by the operator
- R released by the operator.

Refer to the example of the Results report shown below.

Results		Operator ID: 10		04/08/1998 13:40	

Sample ID	: 120018	P Seq No.	: 45		
Disk - Pos.	: 0- 9	Sampling Date	: 04/08/1998 11:29		
Test Code	Result	Unit	Dil.	Exp. Values	Note Ready Flag

T4	NoValue	ug/dl	[5.000- 11.50]	11:47 45S
HCGSTAT	426.46	mIU/ml	[0.00- 5.00]	11:48 49
Flags : 45 = Abnormal aspiration					
49 = Above expected value range					
S = System Block					

Blocked by the system

Notes

Chapter 3

Instrument Alarms

3.1 Instrument Alarms

Introduction

When an instrument alarm occurs while instrument power is ON, the color of the status line changes on the screen. The alarm code is displayed along with a brief message. Warning, S. Stop and R. Stop messages appear as red text on a yellow status line. L. Stop, A. Stop, P. Stop and Stop alarms appear as yellow text on a red status line. E. Stop alarms appear as yellow text on a flashing red status line. Refer to the examples below.

Operation	Sample bar code not read: 38-01-02 25 Warning				
Inventory	Orders	Results	QC	Status	Util

Status line with a warning, S. Stop or R. Stop alarm



P. Stop	Gripper Z-movement : 18-03-04 P.Stop				
Inventory	Orders	Results	QC	Status	Util




Status line with an L. Stop, A. Stop, P. Stop or Stop alarm



E. Stop	GP controller : 29-01-01 E.Stop				
Inventory	Orders	Results	QC	Status	Util


Status line with an E. Stop alarm

When the alarm text appears it overwrites the usual status line text, but leaves the analyzer status visible. In the first example, a sample bar code alarm occurred at position 25 on the sample disk. The alarm status line remains on the screen until the  key is pressed. Pressing  clears the alarm, returns the status line to normal and accesses the 'Alarm' pop-up window.

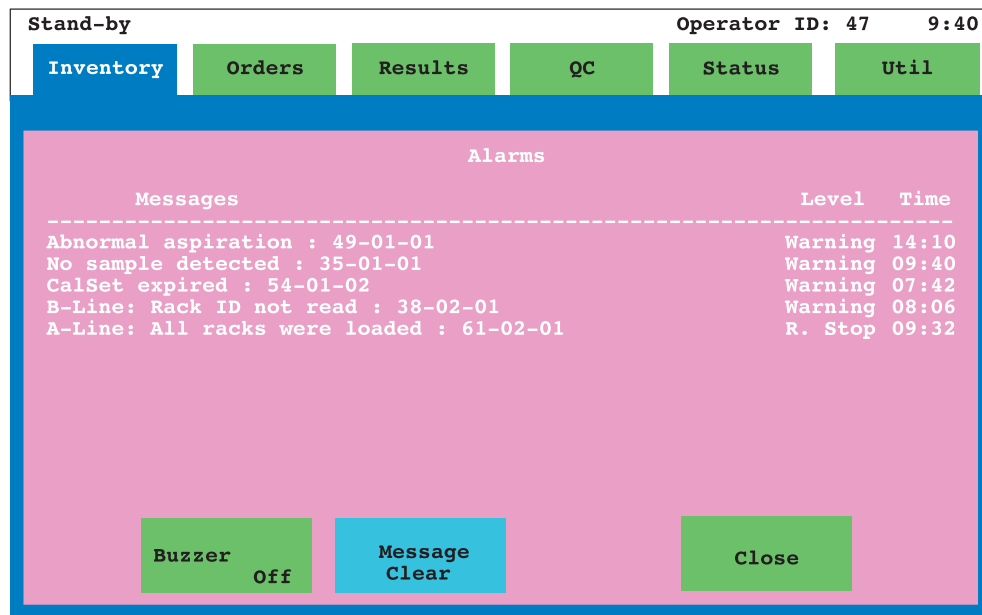
If the green light next to the  key is on, the audible alarm is OFF. If an alarm occurs, the status line changes, but you will not hear the alarm. If the green light next to the  key is off, the audible alarm is ON. If an alarm occurs, you will see a change on the status line, as well as hear the alarm. Use the  button in the 'Alarm' pop-up window to activate or deactivate the audible alarm.

3.1 Instrument Alarms

'Alarm' Pop-up Window

The first alarm that occurs appears on the status line. Additional alarms must be viewed in the 'Alarm' pop-up window. When you press , a pop-up window appears displaying the last 10 alarm messages. You can delete these messages from the window, but they are still available in Message History. The alarms appear in chronological order on the window. You can print a history of alarm message from the 'Print Message History' pop-up window in the MESSAGE HISTORY screen (UTIL folder).

Multiple occurrences of the same alarm are NOT listed in this window. Therefore, you may wish to clear the alarms each time you access this window. All occurrences of alarms can be found in Message History.




Messages		Level	Time
Abnormal aspiration :	49-01-01	Warning	14:10
No sample detected :	35-01-01	Warning	09:40
CalSet expired :	54-01-02	Warning	07:42
B-Line: Rack ID not read :	38-02-01	Warning	08:06
A-Line: All racks were loaded :	61-02-01	R. Stop	09:32

Example of 'Alarm' pop-up window

3.1 Instrument Alarms

Alarm Codes

Check the alarms in the tables contained in this section. Take appropriate troubleshooting measures, as noted for each alarm. Instrument alarms are divided into the following groups listed in order of priority:

- E. Stop:** Emergency Stop. The instrument immediately stops operation. As soon as the instrument is in Stand-by, take appropriate measures to eliminate the error. If an alarm at another level occurs at the same time as the E. Stop alarm, the E. Stop alarm takes priority and appears on the status line. Perform a system reset in the MAINTENANCE screen. This alarm applies to the disk and rack systems.
- Stop:** The instrument stops operation within 20 seconds. As soon as the instrument is in Stand-by, take appropriate measures to eliminate the error. Perform a system reset in the MAINTENANCE screen. This alarm applies to the disk and rack systems.
- P. Stop:** Partial Stop. Part of the instrument is no longer able to continue operation. Additional test items are inhibited, but current operation continues until it is complete. Allow the analyzer to return to Stand-by on its own, or once current operations are complete (e.g., your last sample prints), press  to return the analyzer to Stand-by. Take appropriate measures to eliminate the error and perform a system reset in the MAINTENANCE screen. This alarm applies to the disk and rack systems.
- A. Stop:** Analyzer Stop. The analyzer is no longer able to continue operation. As soon as the entire system is in Stand-by, take appropriate measures to eliminate the error. Perform an L. and A. Reset All in the MAINTENANCE screen. This alarm is equivalent to P. Stop on the disk system.
- L. Stop:** Line Stop. All lines stop operation. Additional tests are inhibited, but the analyzer continues operation until samples in process are completed. As soon as the entire system is in Stand-by, take appropriate measures to eliminate the error. Perform an L. and A. Reset All in the MAINTENANCE screen. This alarm is only applicable to the rack system.
- S. Stop:** Sampling Stop. The sampling operation is forced to stop. Any samples in process are completed before the analyzer goes into Stand-by. If an error caused the analyzer to enter S. Stop, take appropriate measures to eliminate the error when the analyzer returns to Stand-by. This alarm is equivalent to R. Stop on the rack system.

3.1 Instrument Alarms

R. Stop: Rack Stop. The rack loader stops supplying racks to the line. The analyzer continues to operate. If an error caused the analyzer to enter R. Stop, take appropriate measures to eliminate the error when the analyzer returns to Stand-by. This alarm is equivalent to S. Stop on a disk system.

Warning: The instrument continues to operate. A warning alerts you to a situation of which you should be aware. However, the analyzer continues to process samples. Take the appropriate measures to eliminate the warning condition when the analyzer returns to Stand-by, if necessary.

3.1 Instrument Alarms

Description of Instrument Alarms Table

The instrument alarms table is arranged in order of alarm number. The table also includes the alarm code, a description and remedy. Shown below is an example of the instrument alarms table and brief explanation of its contents:

Alarm No.: The alarms are listed in numerical order. When an alarm occurs, look for the alarm number first, then proceed to the Alarm Message.

Alarm Message: This line indicates the descriptive name of the alarm condition. It is also the text that appears on the status line.

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Reagent disk movement			
11-01-01	Stop	R. Disk did not leave home position during a reset.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
11-01-02	Stop	R. Disk did not reach or stop at home position during a reset.	
11-01-03	Stop	R. Disk did not reach or stop at position 1 during a reset.	
11-01-05	R: A. Stop/Stop D: P. Stop/Stop	R. Disk did not reach or stop at the cap open/close position properly.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
11-01-07	R: A. Stop/Stop D: P. Stop/Stop	R. Disk did not reach or stop at the mixing position properly.	
11-01-09	R: A. Stop/Stop D: P. Stop/Stop	R. Disk has moved out of the cap open/close mechanism position.	

Alarm Code: The alarm code indicates the severity of the alarm condition. The previous section explains each of these levels in detail. Note that two codes may be listed for a particular alarm. In this case, the "R" indicates the codes that pertain to the rack system and the "D" indicates the codes that pertain to the disk system.

Cause or Description: This column describes the cause of the alarm condition. Note that there may be more than one cause (description) for a single alarm. Read the entire description before proceeding to remedy the situation.

Remedy: The steps in this column are arranged in sequential order. Perform each step or procedure as it is listed, until the condition is remedied. Note that one remedy (or set of remedies) may apply to several different alarm numbers.

3.1 Instrument Alarms

Legend

The following is a list of terms and their abbreviations found in the Alarms table on the following pages. "x" Stop/Stop as an alarm code means that the alarm is an "x" Stop alarm during analysis† and a Stop alarm during any other status.





Term	Abbreviation
open/close	O/C
reagent disk	R. Disk
sample disk	S. Disk
bar code reader	BCR
rack system	R
disk system	D

"x" is either "A" for an A. Stop alarm or "P" for a P. Stop alarm.

† means during Operation, S. Stop, S. Stop-S.Scan and P. Stop status conditions for the disk system and Operation, R. Stop, L. Stop, A. Stop, A. Stop-R.Stop and L. Stop-A.Stop for the rack system.

Backup Data Disk

In the **Remedy** column there are certain instances where you are instructed to power off the analyzer at the circuit breaker due to the nature of the alarm condition. Before you attempt this, ensure that you have a backup data disk available. If you do not have a backup disk available, use the following procedure to create one.

STEP	ACTION
1	Obtain a formatted PC-compatible floppy disk. Use a high quality, high density disk.
2	Touch  to access the UTIL screen.
3	Touch  to access the MAINTENANCE screen.
4	Touch  to access the 'FD Write' pop-up window.
5	Insert the blank disk into the drive and touch  . The process takes approximately 4 minutes.

3.1 Instrument Alarms

List of Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Reagent disk movement			
11-01-01	Stop	R. Disk did not leave home position during a reset.	a. Check for proper placement of the reagent cover. b. Perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
11-01-02	Stop	R. Disk did not reach or stop at home position during a reset.	
11-01-03	Stop	R. Disk did not reach or stop at position 1 during a reset.	
11-01-05	R: A. Stop/Stop D: P. Stop/Stop	R. Disk did not reach or stop at the cap open/close position properly.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
11-01-07	R: A. Stop/Stop D: P. Stop/Stop	R. Disk did not reach or stop at the mixing position properly.	
11-01-09	R: A Stop/Stop D: P. Stop/Stop	R. Disk has moved out of the cap open/close mechanism position.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Cap open/close mechanism in/out			
12-01-01	Stop	Cap O/C mechanism did not leave the in/out home (in) position during a reset.	<ul style="list-style-type: none"> a. Remove the reagent disk cover and check for obstructions. b. Verify the reagent packs are seated properly in the reagent disk. c. Perform a system reset from the MAINTENANCE screen. d. If the error recurs, call Technical Support.
12-01-02	Stop	Cap O/C mechanism did not reach or stop at the in/out home (in) position during a reset.	
12-01-03	Stop	Cap O/C mechanism did not leave the in/out capping (out) position during a reset.	
12-01-04	Stop	Cap O/C mechanism did not reach or stop at the in/out capping (out) position during a reset, if the mechanism was in an out position.	
12-01-05	R: A. Stop/Stop D: P. Stop/Stop	Cap O/C mechanism did not reach or stop at the in/out home (in) or capping (out) position.	<ul style="list-style-type: none"> a. When the analyzer returns to Stand-by, remove the reagent disk cover and check for obstructions. b. Verify the reagent packs are seated properly in the reagent disk. c. Perform a system reset from the MAINTENANCE screen. d. If the error recurs, call Technical Support.
12-01-06	R: A. Stop/Stop D: P. Stop/Stop	Cap O/C mechanism did not reach or stop at the in/out home (in) position.	
12-01-07	R: A. Stop/Stop D: P. Stop/Stop	Cap O/C mechanism did not reach or stop at the in/out capping (out) position.	
12-01-08	R: A. Stop/Stop D: P. Stop/Stop	Cap O/C mechanism did not reach or stop at the in/out opening (out) position properly.	
12-01-09	R: A. Stop/Stop D: P. Stop/Stop	Cap O/C mechanism did not reach or stop at the in/out opening (out) position properly.	


3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Cap open/close mechanism up/down			
12-02-01	Stop	Cap O/C mechanism did not leave the rotational home (open) position during a reset.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
12-02-02	Stop	Cap O/C mechanism did not reach or stop at the rotational home (open) position during a reset.	
12-02-03	R: A. Stop/Stop D: P. Stop/Stop	Cap O/C mechanism did not reach or stop at the rotational home (open) position.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
12-02-05	R: A. Stop/Stop D: P. Stop/Stop	Cap O/C mechanism did not reach or stop at the rotational close position.	
12-02-06	R: A. Stop/Stop D: P. Stop/Stop	Cap O/C mechanism did not reach or stop at the rotational capping position.	
12-02-07	R: A. Stop/Stop D: P. Stop/Stop	Cap O/C mechanism did not leave the rotational home (open) position.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Mixer horiz. position			
13-01-01	Stop	Mixer did not leave the rotational home (rinse) position during a reset.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
13-01-02	Stop	Mixer did not reach or stop at the rotational home (rinse) position during a reset.	
13-01-03	R: A. Stop/Stop D: P. Stop/Stop	Mixer did not reach or stop at the rotational home (rinse) position.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
13-01-04	R: A. Stop/Stop D: P. Stop/Stop	Mixer did not reach or stop at the rotational mixing position.	
13-01-05	R: A. Stop/Stop D: P. Stop/Stop	Mixer has moved out of the rotational home (rinse) position when starting to mix.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Mixer up/down			
13-02-01	Stop	Mixer did not leave the vertical home (up) position during a reset.	a. Check for obstructions. b. Perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
13-02-02	Stop	Mixer has not reached the vertical home (up) position during a reset.	
13-02-03	R: A. Stop/Stop D: P. Stop/Stop	Mixer has not reached the vertical home (up) position.	a. Check for obstructions. b. When the analyzer returns to Stand-by, switch the analyzer off at the operation switch. Move the mixer up and away from the reagent disk.  Power must be off to move analyzer components. If power is on, the motors are engaged and attempted movement may damage these components. c. Remove the reagent disk cover and check for obstructions. d. Return the reagent disk cover and switch the analyzer on. The analyzer performs the start-up reset operation and each mechanism returns to its home or Stand-by position. e. If the error recurs, call Technical Support.
13-02-04	R: A. Stop/Stop D: P. Stop/Stop	Mixer did not reach or stop at the vertical home position while attempting to go to the vertical mixing or vertical rinsing position.	
13-02-05	R: A. Stop/Stop D: P. Stop/Stop	Mixer did not leave the vertical home (up) position.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Bar code reader position			
14-01-01	D: P. Stop/Stop	BCR did not leave the home position during a reset.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
14-01-02	D: P. Stop/Stop	BCR did not reach or stop at the home position during a reset.	
14-01-03	Stop	BCR did not reach or stop at the home position.	
14-01-04	D: P. Stop/Stop	BCR did not reach or stop at the S. Disk reading position (other than home position).	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Sample disk movement			
15-01-01	Stop	S. Disk did not move out of home position during a reset.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
15-01-02	Stop	S. Disk did not reach or stop at the home position during a reset.	
15-01-03	Stop	S. Disk did not reach or stop at position 1 during a reset.	
15-01-04	P. Stop/Stop	S. Disk did not reach or stop at the sampling position correctly.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
15-01-05	P. Stop/Stop	S. Disk did not stop at the bar code reading position correctly.	
15-01-06	P. Stop/Stop	S. Disk moved out of the sampling position while attempting to pipette a sample.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: S/R arm X-movement			
16-01-01	Stop	S/R arm did not leave the horizontal home position during a reset.	a. Verify the sample protector is down. b. Perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
16-01-02	Stop	S/R arm did not reach or stop at the horizontal home position during a reset.	
16-01-03	R: A. Stop/Stop D: P. Stop/Stop	S/R arm did not reach or stop at the horizontal home position.	a. Verify the sample protector is down. b. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
16-01-04	R: A. Stop/Stop D: P. Stop/Stop	S/R arm did not leave the horizontal home or sampling position when moving to the tip eject station.	
16-01-05	R: A. Stop/Stop D: P. Stop/Stop	S/R arm did not leave the horizontal home or sampling position when moving to position 5 on the pipetting station.	
16-01-06	R: A. Stop/Stop D: P. Stop/Stop	S/R arm did not leave the horizontal home or sampling position when moving to position 4 on the pipetting station (dilution position #2).	
16-01-07	R: A. Stop/Stop D: P. Stop/Stop	S/R arm did not leave the horizontal home or sampling position when moving to position 3 on the pipetting station (dilution position #1).	
16-01-14	R: A. Stop/Stop D: P. Stop/Stop	S/R arm did not reach the horizontal sampling position.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: S/R arm Z-movement			
16-02-02	Stop	S/R arm did not reach or stop at the vertical home (up) position during a reset.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
16-02-03	R: A. Stop/Stop D: P. Stop/Stop	S/R arm did not reach or stop at the vertical home (up) position except at the sampling position.	a. Check for obstacles at the sampling position. b. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
16-02-04	R: A. Stop/Stop D: P. Stop/Stop	S/R arm did not lower.	
16-02-05	R: A. Stop/Stop D: P. Stop/Stop	S/R arm detected an abnormal descent except at the sampling position.	
16-02-06	R: A. Stop/Stop D: P. Stop/Stop	S/R arm detected an abnormal ascent.	
16-02-07	R: A. Stop/Stop D: P. Stop/Stop	S/R arm moved out of the vertical home position while attempting to move horizontally.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
16-02-08	R: A. Stop/Stop D: P. Stop/Stop	S/R arm did not reach or stop at the vertical home position at the sampling position.	
16-02-09	Stop	S/R arm detected an abnormal descent on the sampling position during analyzer status other than Operation.	a. Check for obstacles at the sampling position. b. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
16-02-13	Warning	S/R arm detected an abnormal descent at the sampling position during operation or S/R probe detected inadequate sample volume.	a. Check the sample volume. b. Check for obstacles at the sampling position. c. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. d. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: S/R pipettor movement			
17-01-01	Stop	S/R pipettor did not leave the home position during a reset.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
17-01-02	Stop	S/R pipettor did not reach the home position during a reset.	
17-01-03	R: A. Stop/Stop D: P. Stop/Stop	S/R pipettor did not reach the home position.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
17-01-05	R: A. Stop/Stop D: P. Stop/Stop	S/R pipettor did not leave the home position.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Gripper X-movement			
18-01-01	Stop	Gripper did not leave the X home position during a reset.	a. Check for obstructions. b. Perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
18-01-02	Stop	Gripper did not reach or stop at the X home position during a reset.	
18-01-03	R: A. Stop/Stop D: P. Stop/Stop	Gripper did not reach the X home position while moving to the gripper's rest position.	a. Check for obstructions. b. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
18-01-04	R: A. Stop/Stop D: P. Stop/Stop	Gripper did not leave the X home position while moving from the gripper's rest position.	
18-01-05	R: A. Stop/Stop D: P. Stop/Stop	Gripper left the X home position while moving from the gripper's home, shunt, rest or stand-by positions.	
18-01-10	R: A. Stop/Stop D: P. Stop/Stop	Gripper left the X home position while moving from the gripper's rest position.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Gripper Y-movement			
18-02-01	Stop	Gripper did not leave the Y home position during a reset.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
18-02-02	Stop	Gripper did not reach or stop at the Y home position during a reset.	
18-02-04	Stop	Gripper did not leave the Y home position during a reset and while moving from the gripper's home position to its shunt, rest or stand-by position.	
18-02-09	R: A. Stop/Stop D: P. Stop/Stop	Gripper did not reach or stop at the Y rest position while moving to the gripper's rest position.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
18-02-10	R: A. Stop/Stop D: P. Stop/Stop	Gripper did not leave the Y rest position while moving from the gripper's rest position.	
18-02-13	R: A. Stop/Stop D: P. Stop/Stop	Gripper leaves the Y rest position while moving from the gripper's rest position.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Gripper Z-movement			
18-03-02	Stop	Gripper did not reach or stop at the vertical home position during a reset.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
18-03-03	R: A. Stop/Stop D: P. Stop/Stop	Gripper did not reach or stop at the vertical home position.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
18-03-04	R: A. Stop/Stop D: P. Stop/Stop	Gripper did not leave vertical home position.	
18-03-05	Warning	Gripper detected abnormal descent.	a. Verify there are no obstructions on the tip and cup trays. b. If the error recurs, call Technical Support.
18-03-06	R: A. Stop/Stop D: P. Stop/Stop	Gripper left the vertical home position during an X-Y movement.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Gripper open/close			
18-04-01	R: A. Stop/Stop D: P. Stop/Stop	Gripper finger did not close.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
18-04-02	R: A. Stop/Stop D: P. Stop/Stop	Gripper finger did not open.	
Alarm Message: Gripper-no tip found			
18-04-03	R: A. Stop/Stop D: P. Stop/Stop	Gripper finger did not find a tip.	
Alarm Message: Gripper-no cup found			
18-04-05	R: A. Stop/Stop D: P. Stop/Stop	Gripper finger did not find a cup.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Assay cup pick up failed			
18-05-01	R: A. Stop/Stop D: P. Stop/Stop	Gripper could not pick up a cup in the pipetting station.	a. Check for spills on the incubator and clean, if necessary. b. Repeat any tests that were excluded. c. If the error recurs, call Technical Support.
18-05-02	Warning	Gripper could not pick up a cup in the incubator while trying to move to the pipetting station (during Operation status).	
18-05-03	Stop	Gripper could not pick up a cup in the incubator while trying to move to the pipetting station (during analyzer status other than Operation).	
18-05-04	Warning	Gripper could not pick up a cup in the incubator while trying to move to the aspiration station (during Operation status).	
18-05-05	Stop	Gripper could not pick up a cup in the incubator while trying to move to the aspiration station (during analyzer status other than Operation).	
18-05-06	R: A. Stop/Stop D: P. Stop/Stop	Gripper could not pick up a cup at the aspiration station.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Solid waste tray movement			
19-01-01	Stop	Solid waste tray did not leave the home position during a reset.	<ul style="list-style-type: none"> a. Check for stray cups or tips behind the solid waste tray and remove, if necessary. b. Perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
19-01-02	Stop	Solid waste tray did not reach the home position during a reset.	
19-01-03	R: A. Stop/Stop D: P. Stop/Stop	Solid waste tray did not reach the home position.	<ul style="list-style-type: none"> a. Check for stray cups or tips behind the solid waste tray and remove, if necessary. b. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Sipper arm X-movement			
20-01-01	Stop	Sipper arm did not leave the horizontal home position during a reset.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
20-01-02	Stop	Sipper arm did not reach or stop at the horizontal home position during a reset.	
20-01-03	R: A. Stop/Stop D: P. Stop/Stop	Sipper arm did not reach or stop at the horizontal home position.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
20-01-07	R: A. Stop/Stop D: P. Stop/Stop	Sipper arm did not leave the home position or aspiration station position while attempting to move to the rinse station.	
20-01-08	R: A. Stop/Stop D: P. Stop/Stop	Sipper arm did not reach or stop at the horizontal aspiration station position.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Sipper arm Z-movement			
20-02-02	Stop	Sipper arm did not reach or stop at the vertical home position during a reset.	<ul style="list-style-type: none"> a. Verify the ProCell/CleanCell lids are open. b. Perform a system reset from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
20-02-03	R: A. Stop/Stop D: P. Stop/Stop	Sipper arm did not reach or stop at the vertical home position during a reset.	
20-02-04	R: A. Stop/Stop D: P. Stop/Stop	Sipper arm did not lower.	
20-02-05	R: A. Stop/Stop D: P. Stop/Stop	Sipper arm detected abnormal descent.	
20-02-06	R: A. Stop/Stop D: P. Stop/Stop	Sipper arm detected abnormal ascent.	
20-02-07	R: A. Stop/Stop D: P. Stop/Stop	Sipper arm left the vertical home position while attempting to move horizontally.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Sipper pipettor movement			
21-01-01	Stop	Sipper pipettor did not leave the home position during a reset.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
21-01-02	Stop	Sipper pipettor did not reach the home position during a reset.	
21-01-03	R: A. Stop/Stop D: P. Stop/Stop	Sipper pipettor did not reach the home position.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
21-01-05	R: A. Stop/Stop D: P. Stop/Stop	Sipper pipettor did not leave the home position.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Magnet drive movement			
22-01-01	Stop	Magnet did not leave the home position during a reset.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
22-01-02	Stop	Magnet did not reach the home position during a reset.	
22-01-03	Stop	Magnet did not reach the home position.	
22-01-04	Stop	Magnet did not leave the home position.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Pipetting station-cup position occupied			
23-01-01	R: A. Stop/Stop D: P. Stop/Stop	A cup was detected at position 5 on the pipetting station when the gripper attempts to place a new cup in that position.	a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. Check if there are cups in the pipetting station. c. If there are no cups in the pipetting station, clean the pipetting station with a cotton swab. d. If the error recurs, call Technical Support.
Alarm Message: Pipetting station-cup missing			
23-01-02	R: A. Stop/Stop D: P. Stop/Stop	A cup was not detected at position 5 on the pipetting station.	
Alarm Message: Pipetting station-cup position occupied			
23-01-03	R: A. Stop/Stop D: P. Stop/Stop	A cup was detected at position 3 (dilution position #1) on the pipetting station when the gripper attempts to place a new cup in that position.	
Alarm Message: Pipetting station-cup missing			
23-01-04	R: A. Stop/Stop D: P. Stop/Stop	A cup was not detected at position 3 (dilution position #1) on the pipetting station.	
Alarm Message: Pipetting station-cup position occupied			
23-01-05	R: A. Stop/Stop D: P. Stop/Stop	A cup was detected at position 4 (dilution position #2) on the pipetting station when the gripper attempts to place a new cup in that position.	
Alarm Message: Pipetting station-cup missing			
23-01-06	R: A. Stop/Stop D: P. Stop/Stop	A cup was not detected at position 4 (dilution position #2) on the pipetting station.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Pipetting station-tip position occupied			
23-01-07	R: A. Stop/Stop D: P. Stop/Stop	A tip was detected at position 1 on the pipetting station when the gripper attempts to place a new tip in that position.	<ul style="list-style-type: none">a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen.b. Check if there are tips in the pipetting station.c. If there are no tips in the pipetting station, clean the pipetting station with a cotton swab.d. If the error recurs, call Technical Support.
Alarm Message: Pipetting station-tip missing			
23-01-08	R: A. Stop/Stop D: P. Stop/Stop	A tip was not detected in position 1 on the pipetting station.	
Alarm Message: Pipetting station-tip position occupied			
23-01-09	R: A. Stop/Stop D: P. Stop/Stop	A tip was detected at position 2 on the pipetting station when the gripper attempts to place a new tip in that position.	
Alarm Message: Pipetting station-tip missing			
23-01-10	R: A. Stop/Stop D: P. Stop/Stop	A tip was not detected in position 2 on the pipetting station.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Liquid waste container full			
24-01-01	R: A. Stop/Stop D: P. Stop/Stop	Liquid waste container is full.	a. Empty the container. b. If the container is not full, call Technical Support.
Alarm Message: Liquid waste container missing			
24-02-01	E. Stop	The liquid waste container is missing.	a. Replace the liquid waste container. b. If the container is in place, call Technical Support.
Alarm Message: Distilled water low			
25-01-01	R: A. Stop/Stop D: P. Stop/Stop	The distilled water container is low or empty.	a. Refill the distilled water container. b. If the container is full, call Technical Support.
Alarm Message: Solid waste tray missing			
26-01-01	E. Stop	Solid waste tray is missing.	a. Replace the solid waste tray. Ensure the tray is properly installed. b. If the tray is in place, call Technical Support.
Alarm Message: Solid waste tray full			
26-02-01	R: A. Stop/Stop D: P. Stop/Stop	Solid waste tray is full.	Discard the full Clean-Liner properly and install a new Clean-Liner.
Alarm Message: Reagent disk cover open			
28-01-01	Warning	Reagent disk cover is open.	a. Return the cover to the reagent disk. b. If the cover is in place, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: GP controller			
29-01-01	E. Stop	A controller error signal for the S. Disk rotation was detected.	<p>There is potentially an electronic problem.</p> <ol style="list-style-type: none"> When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. If the error recurs, call Technical Support.
29-01-02	E. Stop	A controller error signal for the R. Disk rotation was detected.	
29-01-03	E. Stop	A controller error signal for the cap open/close mechanism in/out movement was detected.	
29-01-04	E. Stop	A controller error signal for the cap open/close mechanism open/close movement was detected.	
29-01-05	E. Stop	A controller error signal for the mixer horizontal movement was detected.	
29-01-06	E. Stop	A controller error signal for the mixer up/down movement was detected.	
29-01-07	E. Stop	A controller error signal for the solid waste tray movement was detected.	
29-01-08	E. Stop	A controller error signal for the BCR rotation was detected.	
29-01-09	E. Stop	A controller error signal for the S/R arm X movement was detected.	
29-01-10	E. Stop	A controller error signal for the S/R arm Z movement was detected.	
29-01-11	E. Stop	A controller error signal for the sipper arm X movement was detected.	
29-01-12	E. Stop	A controller error signal for the sipper arm Z movement was detected.	
29-01-13	E. Stop	A controller error signal for the gripper X movement was detected.	
29-01-14	E. Stop	A controller error signal for the gripper Z movement was detected.	
29-01-15	E. Stop	A controller error signal for the gripper Y movement was detected.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: GP controller			
29-01-16	E. Stop	A controller error signal for the magnet drive movement was detected.	<p>There is potentially an electronic problem.</p> <ol style="list-style-type: none"> When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. If the error recurs, call Technical Support.
29-01-17	E. Stop	A controller error signal for the S/R pipettor movement was detected.	
29-01-18	E. Stop	A controller error signal for the sipper pipettor movement was detected.	
29-01-19	E. Stop	A controller error signal was detected.	
29-01-20	E. Stop	A controller error signal was detected.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Rack GP controller			
29-01-21	E. Stop	A controller error signal was detected.	There is potentially an electronic problem. a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. b. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. c. If the error recurs, call Technical Support.
29-01-22	E. Stop	A controller error signal was detected.	
29-01-23	E. Stop	A controller error signal was detected.	
29-01-24	E. Stop	A controller error signal was detected.	
29-01-25	E. Stop	A controller error signal was detected.	
29-01-26	E. Stop	A controller error signal was detected.	
29-01-27	E. Stop	A controller error signal was detected.	
29-01-28	E. Stop	A controller error signal was detected.	
29-01-29	E. Stop	A controller error signal was detected.	
29-01-30	E. Stop	A controller error signal was detected.	
Alarm Message: GM controller			
29-02-01	E. Stop	An electronic failure was detected.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: GP controller timeout			
30-01-01	E. Stop	A timeout error for the S. Disk rotation was detected.	<p>There is potentially an electronic problem.</p> <ol style="list-style-type: none"> When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. If the error recurs, call Technical Support.
30-01-02	E. Stop	A timeout error for the R. Disk rotation was detected.	
29-01-03	E. Stop	A timeout error for the cap open/close mechanism in/out movement was detected.	
30-01-04	E. Stop	A timeout error for the cap open/close mechanism open/close movement was detected.	
30-01-05	E. Stop	A timeout error for the mixer horizontal movement was detected.	
30-01-06	E. Stop	A timeout error for the mixer up/down movement was detected.	
30-01-07	E. Stop	A timeout error for the solid waste tray movement was detected.	
30-01-08	E. Stop	A timeout error for the BCR rotation was detected.	
30-01-09	E. Stop	A timeout error for the S/R arm X movement was detected.	
30-01-10	E. Stop	A timeout error for the S/R arm Z movement was detected.	
30-01-11	E. Stop	A timeout error for the sipper arm X movement was detected.	
30-01-12	E. Stop	A timeout error for the sipper arm Z movement was detected.	
30-01-13	E. Stop	A timeout error for the gripper X movement was detected.	
30-01-14	E. Stop	A timeout error for the gripper Z movement was detected.	
30-01-15	E. Stop	A timeout error for the gripper was detected.	
30-01-16	E. Stop	A timeout error for the magnet drive movement was detected.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: GP controller timeout			
30-01-17	E. Stop	A timeout error for the S/R pipettor movement was detected.	<p>There is potentially an electronic problem.</p> <p>a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen.</p> <p>b. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7.</p> <p>c. If the error recurs, call Technical Support.</p>
30-01-18	E. Stop	A timeout error for the sipper pipettor movement was detected.	
30-01-19	E. Stop	A controller error signal was detected.	
30-01-20	E. Stop	A controller error signal was detected.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Rack GP controller timeout			
30-01-21	E. Stop	A timeout error was detected.	There is potentially an electronic problem. a. When the analyzer returns to Stand-by, perform an L. and A. Reset All from the MAINTENANCE screen. b. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. c. If the error recurs, call Technical Support.
30-01-22	E. Stop	A timeout error was detected.	
30-01-23	E. Stop	A timeout error was detected.	
30-01-24	E. Stop	A timeout error was detected.	
30-01-25	E. Stop	A timeout error was detected.	
30-01-26	E. Stop	A timeout error was detected.	
30-01-27	E. Stop	A timeout error was detected.	
30-01-28	E. Stop	A timeout error was detected.	
30-01-29	E. Stop	A timeout error was detected.	
30-01-30	E. Stop	A timeout error was detected.	
Alarm Message: GM controller timeout			
30-02-01	E. Stop	An electronic failure was detected.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: ADC error			
31-01-01	Warning	Abnormal ADC was detected.	Call Technical Support.
Alarm Message: ADC timeout			
31-01-02	Warning	ADC timeout was detected.	
Alarm Message: ADC reference voltage			
31-01-03	Warning	Abnormal ADC reference voltage was detected.	
Alarm Message: ProCell count level over range			
31-02-01	Warning	The counts read during a ProCell measurement were out of range.	a. Check for bubbles or foam in the ProCell bottles. b. Replace current ProCell with a new bottle. Perform a MC Preparation (5 cycles) from the MAINTENANCE screen. c. If the error recurs, call Technical Support.
Alarm Message: Measuring cell current over range			
31-02-02	Warning	Abnormal current was detected during a measuring cell check.	
Alarm Message: DO3 PCB temperature			
32-01-02	Warning	An abnormal temperature was detected in the DO3 circuit board.	a. Check that the fans at the back of the analyzer are operating normally. b. Check that the room temperature is between 18 °C and 32 °C. c. Perform a system reset from the MAINTENANCE screen. d. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. e. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: +15V low			<p>There is potentially an electronic problem.</p> <p>a. When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen.</p> <p>b. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7.</p> <p>c. If the error recurs, call Technical Support.</p>
33-01-01	Stop	A low +15 V (for temperature control) signal was detected.	
Alarm Message: -15V low			
33-01-02	Stop	A low -15 V (for temperature control) signal was detected.	
Alarm Message: +15V low			
33-01-03	Stop	A low +15 V (for analog) signal was detected.	
Alarm Message: -15V low			
33-01-04	Stop	A low -15 V (for analog) signal was detected.	
Alarm Message: +12V low			
33-01-05	Stop	A low +12 V (for analog) signal was detected.	
Alarm Message: -12V low			
33-01-06	Stop	A low -12 V (for analog) signal was detected.	
Alarm Message: +12V low			
33-01-07	Stop	A low +12 V signal was detected.	
Alarm Message: +24V low			
33-01-08	E. Stop	A low +24 V signal was detected.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: DO1 fuse blown			
34-01-01	E. Stop	A blown fuse was detected on the DO1 circuit board.	<p>There is potentially an electronic problem.</p> <ol style="list-style-type: none"> When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. If the error recurs, call Technical Support.
Alarm Message: DO2 fuse blown			
34-01-02	E. Stop	A blown fuse was detected on the DO2 circuit board.	<ol style="list-style-type: none"> Check for stray cups and tips behind the solid waste tray. If any are present, remove and then perform a system reset from the MAINTENANCE screen. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. If the error recurs, then there is potentially an electronic problem; call Technical Support.
Alarm Message: DO3 fuse blown			
34-01-03	E. Stop	A blown fuse was detected on the DO3 circuit board.	<p>There is potentially an electronic problem.</p> <ol style="list-style-type: none"> When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. If the error recurs, call Technical Support.
Alarm Message: EIO fuse blown			
34-01-04	E. Stop	A blown fuse was detected on the EIO circuit board.	<ol style="list-style-type: none"> When the analyzer returns to Stand-by, perform a system reset from the MAINTENANCE screen. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. If the error recurs, call Technical Support.


3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: No sample detected			
35-01-01	Warning	S/R probe did not detect liquid level at the sample in position "x." (Position "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Verify sample placement against worklist. b. Check sample volume. c. If the sample volume is adequate, access the VOLTAGE MONITOR screen from the UTIL screen. If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe. d. If the alarm recurs immediately, call Technical Support.
Alarm Message: Sample short			
35-01-02	Warning	S/R probe detected inadequate sample volume in position "x." (Position "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check sample volume. b. Check that tubes are properly placed on the sample disk. c. If the sample volume is adequate and tubes are in place, call Technical Support.
Alarm Message: Premature LLD signal-Sample			
35-01-05	Warning	A premature LLD signal was detected during sample pipetting, causing the S/R probe to hover over the sample OR S/R probe detected inadequate sample volume in position "x." (Position "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check sample volume. Refer to Section 2.7, Technical Data – <i>Reference Guide</i>, for information on sample container dead volumes. b. Check for bubbles in the sample. c. Check that tubes are properly placed on the sample disk. d. Check that the brush near the BCR opening is making contact with the S. Disk. e. Check that the room humidity is between 20% and 80%. f. Wipe the S. Disk inner compartment with a damp gauze square.
35-01-06	Warning	A premature LLD signal was detected during sample pipetting, causing the S/R probe to hover over the sample at position "x." (Position "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Access the VOLTAGE MONITOR screen from the UTIL screen. If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe. b. If the voltage is still > 2.00 V, call Technical Support.
35-01-07	Warning	A premature LLD signal was detected during sample pipetting, causing the S/R probe to hover over the sample at position "x." (Position "x" appears to the right of the alarm message on the screen or printout.)	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: R. Disk temperature (>30min)			
36-01-02	Warning	R. Disk temperature is out of range. An initial check occurs at 30 minutes after power ON at the circuit breaker. The temperature is checked continuously thereafter.	<div>a. Verify that the R. Disk cover is securely in place.</div> <div>b. Check that the fans at the back of the analyzer are operating normally.</div> <div>c. Check that the room temperature is between 18 °C and 32 °C.</div> <div>d. If the error recurs, call Technical Support.</div>
Alarm Message: Incubator temperature (>30min)			
36-02-02	Warning	Incubator temperature is out of range. An initial check occurs at 30 minutes after power ON at the circuit breaker. The temperature is checked continuously thereafter.	<div>a. Check that the fans at the back of the analyzer are operating normally.</div> <div>b. Check that the room temperature is between 18 °C and 32 °C.</div> <div>c. If the error recurs, call Technical Support.</div>
Alarm Message: Cell temperature (>30min)			
36-03-02	Warning	Measuring cell temperature is out of range. An initial check occurs at 30 minutes after power ON at the circuit breaker. The temperature is checked continuously thereafter.	<div>a. Verify temperature of ProCell/ CleanCell on the analyzer.</div> <div>b. Check that the fans at the back of the analyzer are operating normally.</div> <div>c. Check that the room temperature is between 18 °C and 32 °C.</div> <div>d. If the error recurs, call Technical Support.</div>
Alarm Message: PC/CC reagent temperature (>30min)			
36-04-02	Warning	ProCell/CleanCell reagent temperature is out of range. An initial check occurs at 30 minutes after power ON at the circuit breaker. The temperature is checked continuously thereafter.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: PC/CC reagent temp. not at equilibrium			
36-05-01	Warning	ProCell/CleanCell reagent bottle set 1 (positions 1 & 2) was not at 28 °C.	<p>a. Ensure that ProCell/CleanCell reagent was at 28 °C prior to operation.</p> <p>b. If reagent has been on the analyzer longer than 15 min., remove liquid from the bottle(s) so that the liquid level is approx. 1 inch (2.5 cm) from the top of the bottle.</p> <p> <i>If you remove a bottle from positions 2 or 3 (where the photosensors are located), the analyzer considers that bottle set to be “new” and will not use the set for 15 minutes.</i></p> <p>c. If the error recurs, call Technical Support.</p>
36-05-03	R: R Stop/Stop D. P. Stop/Stop	ProCell/CleanCell reagent bottle set 2 (positions 3 & 4) was not at 28 °C.	
36-05-05	Stop	ProCell/CleanCell reagent bottle sets 1 and 2 were not at 28 °C.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Assay reagent not detected			
37-01-01	Warning	S/R probe did not detect liquid level of assay reagent test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check reagent volume. b. If the reagent volume is adequate, access the VOLTAGE MONITOR screen from the UTIL screen. If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe. c. If the alarm recurs immediately, call Technical Support.
Alarm Message: Assay reagent short			
37-01-02	Warning	Assay reagent is inadequate for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check the number of remaining tests on the INVENTORY screen. Replace the appropriate reagent pack. b. Perform a Reagent Scan after replacement. If the error recurs, call Technical Support.
Alarm Message: Assay reagent bubble detected			
37-01-04	Warning	The S/R probe contacts a bubble in the reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check for bubbles in the reagent pack. Eliminate any bubbles that may be present. b. If the alarm recurs immediately, call Technical Support.
Alarm Message: Premature LLD signal-R. Disk			
37-01-05	Warning	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the reagent pack.	<ul style="list-style-type: none"> a. Check for moisture on the reagent pack lids. b. Access the VOLTAGE MONITOR screen from the UTIL screen. If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe. c. If the voltage is still > 2.00 V, call Technical Support.
37-01-06	Warning	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	
37-01-07	Warning	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Diluent not detected			
37-02-01	Warning	S/R probe did not detect liquid level of diluent for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check diluent volume. b. If the diluent volume is adequate, access the VOLTAGE MONITOR screen from the UTIL screen. If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe. c. If the alarm recurs immediately, call Technical Support.
Alarm Message: Diluent short			
37-02-02	Warning	Diluent was inadequate for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check for bubbles in the diluent reagent pack. Eliminate any bubbles that may be present. b. Check the number of mls remaining on the INVENTORY screen. Replace the diluent reagent pack. c. Perform a Reagent Scan after replacement. If the error recurs, call Technical Support.
Alarm Message: Diluent bubble detected			
37-02-04	Warning	The S/R probe contacted a bubble in the diluent reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check for bubbles in the diluent reagent pack. Eliminate any bubbles that may be present. b. If the alarm recurs immediately, call Technical Support.
Alarm Message: Premature LLD signal-R. Disk			
37-02-05	Warning	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the diluent reagent pack.	<ul style="list-style-type: none"> a. Check for moisture on the reagent pack lids. b. Access the VOLTAGE MONITOR screen from the UTIL screen. If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe. c. If the voltage is still > 2.00 V, call Technical Support.
37-02-06	Warning	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the diluent reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	
37-02-07	Warning	A premature LLD signal is detected during reagent pipetting, causing the S/R probe to hover over the diluent reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Pretreatment not detected			
37-03-01	Warning	S/R probe did not detect liquid level of pretreatment for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check pretreatment volume. b. If the pretreatment volume is adequate, access the VOLTAGE MONITOR screen from the UTIL screen. If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe. c. If the alarm recurs immediately, call Technical Support.
Alarm Message: Pretreatment short			
37-03-02	Warning	Pretreatment was inadequate for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check the number of tests remaining on the INVENTORY screen. Replace the pretreatment reagent pack. b. Perform a Reagent Scan after replacement. If the error recurs, call Technical Support.
Alarm Message: Pretreatment bubble detected			
37-03-04	Warning	The S/R probe contacted a bubble in the pretreatment reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check for bubbles in the pretreatment reagent pack. Eliminate any bubbles that may be present. b. If the alarm recurs immediately, call Technical Support.
Alarm Message: Premature LLD signal-R. Disk			
37-03-05	Warning	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the pretreatment reagent pack.	<ul style="list-style-type: none"> a. Check for moisture on the reagent pack lids. b. Access the VOLTAGE MONITOR screen from the UTIL screen. If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe. c. If the voltage is still > 2.00 V, call Technical Support.
37-03-06	Warning	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the pretreatment reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	
37-03-07	Warning	A premature LLD signal was detected during reagent pipetting, causing the S/R probe to hover over the pretreatment reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: BlankCell not detected			
37-04-01	Warning	S/R probe did not detect liquid level of BlankCell for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check BlankCell volume. b. If the BlankCell volume is adequate, access the VOLTAGE MONITOR screen from the UTIL screen. If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe. c. If the alarm recurs immediately, call Technical Support.
Alarm Message: BlankCell short			
37-04-02	Warning	BlankCell is inadequate for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check the number of tests remaining on the INVENTORY screen. Replace the BlankCell reagent pack. b. Perform a Reagent Scan after replacement. If the error recurs, call Technical Support.
Alarm Message: BlankCell bubble detected			
37-04-04	Warning	The S/R probe contacted a bubble in the BlankCell reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Check for bubbles in the BlankCell reagent pack. Eliminate any bubbles that may be present. b. If the alarm recurs immediately, call Technical Support.
Alarm Message: Premature LLD signal-R. Disk			
37-04-05	Warning	A premature LLD signal is detected during BlankCell pipetting, causing the S/R probe to hover over the BlankCell reagent pack.	<ul style="list-style-type: none"> a. Check for moisture on the reagent pack lids. b. Access the VOLTAGE MONITOR screen from the UTIL screen. If the S/R probe LLD voltage is > 2.00 V, then clean the S/R probe. c. If the voltage is still > 2.00 V, call Technical Support.
37-04-06	Warning	A premature LLD signal is detected during BlankCell pipetting, causing the S/R probe to hover over the BlankCell reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	
37-04-07	Warning	A premature LLD signal is detected during BlankCell pipetting, causing the S/R probe to hover over the BlankCell reagent pack for test number "x." (Test number "x" appears to the right of the alarm message on the screen or printout.)	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: PC/CC not detected			
37-05-01	Warning	Sipper probe did not detect liquid level of ProCell/ CleanCell in either bottle set 1 or 2. (bottle set 1 = positions 1 and 2; bottle set 2 = positions 3 and 4)	a. Ensure that there is a ProCell/ CleanCell bottle set in the system reagent compartment. b. If bottles are present, call Technical Support.
37-05-02	Stop	Sipper probe did not detect liquid level of ProCell/ CleanCell in bottle sets 1 and 2.	a. Ensure that there are ProCell/ CleanCell bottle sets in the system reagent compartment. b. If bottles are present, call Technical Support.
Alarm Message: PC/CC short			
37-05-03	Stop	The ProCell/CleanCell volumes are inadequate.	a. Check the number of tests remaining on the INVENTORY screen. Replace the appropriate reagent pack. b. If the error recurs after replacement, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: PC/CC bubble detected (Pos 1)			
37-06-01	Warning	A bubble was detected at aspiration in the ProCell or CleanCell bottle in Set 1 (position 1 and 2).	a. Check for bubbles in the ProCell and CleanCell bottles in Set 1 (positions 1 and 2). Eliminate any bubbles that may be present. b. If the error recurs, call Technical Support.
37-06-02	Stop	A bubble was detected at level check in the ProCell or CleanCell bottle in Set 1 (position 1 and 2).	
Alarm Message: PC/CC bubble detected (Pos 2)			
37-06-03	Warning	A bubble was detected at aspiration in the ProCell or CleanCell bottle in Set 2 (position 3 and 4).	a. Check for bubbles in the ProCell and CleanCell bottles in Set 2 (positions 3 and 4). Eliminate any bubbles that may be present. b. If the error recurs, call Technical Support.
37-06-04	Stop	A bubble was detected at level check in the ProCell or CleanCell bottle in Set 2 (position 3 and 4).	
Alarm Message: PC/CC bubble detected			
37-06-05	Stop	The analyzer thinks that there is no ProCell or CleanCell available because a bubble was detected at aspiration in the ProCell or CleanCell bottles.	a. Check for bubbles in the ProCell and CleanCell bottles in Sets 1 and 2. Eliminate any bubbles that may be present. b. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Reagent bar code not read			
38-01-01	Warning	Reagent bar code label scan at position "x" was unsuccessful. (Position "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Verify the label is not smeared or damaged. b. Verify the R. Disk BCR window is clean. c. If the error recurs, call Technical Support.
Alarm Message: Sample bar code not read			
38-01-02	Warning	Sample bar code scan at position "x" was unsuccessful. (Position "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Verify the label is not smeared or damaged. b. If the error recurs, call Technical Support.
Alarm Message: Bar code card not read			
38-01-03	Warning	Bar code card scan was unsuccessful.	<ul style="list-style-type: none"> a. Verify the bar code card is not reversed. b. Verify the label is not smeared or damaged. c. If the error recurs, call Technical Support.
Alarm Message: Bar code communication			
38-01-04	Warning	There was a communication error between the bar code reader and the analyzer.	Call Technical Support.


3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: B-Line: Rack ID not read			
38-02-01	Warning	The BCR failed to read the rack ID on the B-Line.	<ul style="list-style-type: none">a. Verify the rack label is not smeared or damaged.b. For manually-entered rack IDs, verify you entered the correct number of digits (4 or 5). This number is determined during analyzer installation.c. If the error recurs, call Technical Support.
Alarm Message: B-Line: Rack bar code communication			
38-02-03	Warning	There was an error in the communication between the BCR on the B-line and the analyzer.	Call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: One tip tray empty			
39-01-01	Warning	One of the tip trays was empty or the analyzer detected that one of the tip trays was empty due to failure to pick up a tip.	a. Replace the tip tray(s). Perform a Reagent Scan. b. If the error recurs, call Technical Support.
Alarm Message: All tip trays empty			
39-01-02	R: A. Stop/Stop D: P. Stop/Stop	All tip trays were empty or the analyzer detected that all of the tip trays were empty due to failure to pick up a tip.	
Alarm Message: One cup tray empty			
39-02-01	Warning	One of the cup trays was empty or the analyzer detected that one of the cup trays was empty due to failure to pick up a cup.	a. Replace the cup tray(s). Perform a Reagent Scan. b. If the error recurs, call Technical Support.
Alarm Message: All cup trays empty			
39-02-02	P. Stop	All cup trays were empty or the analyzer detected that all of the cup trays were empty due to failure to pick up a cup.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: BlankCell Procedure failed			
40-01-01	Warning	BlankCell procedure was unsuccessful.	The BlankCell Procedure is reserved for service. Call Technical Support for assistance.
Alarm Message: BlankCell expired			
40-01-02	Warning	<p>BlankCell procedure data is expired or there is no valid BlankCell procedure data in the system.</p> <div>  <p><i>This alarm occurs one time after a valid BlankCell procedure is performed and the BlankCell reagent is removed from the reagent disk. Clear the alarm and it will not appear again.</i></p> </div>	<p>The BlankCell Procedure is reserved for service.</p> <ol style="list-style-type: none"> If BlankCell is on the R. disk, remove the reagent pack and perform a reagent scan. If BlankCell remains on the INVENTORY screen, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: FD write protected			
41-01-01	Warning	The floppy disk was write protected. (A write-protected floppy disk cannot be used on the analyzer.)	<ul style="list-style-type: none"> a. Check for a floppy disk in the disk drive. b. Check if the floppy disk is write-protected. If it is, then remove the write-protection and try again. c. If the floppy disk is not write-protected and the alarm recurs, call Technical Support.
Alarm Message: FD write error			
41-01-03	Warning	Floppy disk write error was detected.	<ul style="list-style-type: none"> a. Check for a floppy disk in the disk drive. b. Verify the floppy disk is not damaged. c. Access the MAINTENANCE screen and perform an FD write with a new, formatted floppy disk. d. If the error recurs, call Technical Support.
Alarm Message: FD read error			
41-01-04	Warning	Floppy disk read error was detected.	
Alarm Message: FD access count exceeded			
41-01-05	Warning	The floppy disk has been accessed more than 25,000 times.	Access the MAINTENANCE screen and perform an FD write with a new, formatted floppy disk.
Alarm Message: FD APC backup			
41-01-06	Stop	Data disk error	<ul style="list-style-type: none"> a. Check for a floppy disk in the disk drive. b. Verify the floppy disk is not damaged. c. Perform a system reset from the MAINTENANCE screen. d. If the error recurs, call Technical Support.
Alarm Message: FD APC data read			
41-01-07	Stop	Data disk error	
Alarm Message: FD APC data restore			
41-01-08	Stop	Data disk error	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Printer error			
42-02-01	Warning	The printer is not ready or the printer paper must be refilled.	<ul style="list-style-type: none">a. Verify the printer cable is firmly connected.b. Verify the power is on.c. Verify the printer is on-line.d. Replenish printer paper.e. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Communication-control unit/CPU			
43-01-01	Warning	There is a communication error between the touchscreen and the analyzer.	a. Verify the touchscreen cable is firmly connected. b. If the error recurs, call Technical Support.
Alarm Message: Interface retransmission occurred			
44-01-01	Warning	A retry occurred during message transmission.	a. Verify the host system cable is firmly connected. b. Verify communication settings in the INTERFACE SETUP screen. c. If the error recurs, call Technical Support.
Alarm Message: Interface communication aborted(sending)			
44-01-02	Warning	Communication was aborted during message transmission.	
Alarm Message: Interface commun. aborted(receiving)			
44-01-03	Warning	Communication was aborted while receiving message.	
Alarm Message: Interface retransmission failed			
44-01-04	Warning	Message retransmission was unsuccessful.	
Alarm Message: Interface timeout (sending)			
44-01-05	Warning	Message retransmission was unsuccessful.	
44-01-06	Warning	A timeout occurred during message transmission.	
Alarm Message: Interface timeout (receiving)			
44-01-07	Warning	A timeout occurred while receiving message.	
Alarm Message: Interface format error			
44-01-08	Warning	The communication format was incorrect. a) There is a valid record, but no termination record. b) There is no valid record. c) The first record is not a header record. d) There is an undefined record. e) Data content out of specified range.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Interface acceptance error			
44-01-09	Warning	Update of a database was not allowed.	a. Verify the host system cable is firmly connected. b. Verify communication settings in the INTERFACE SETUP screen. c. If the error recurs, call Technical Support.
Alarm Message: Interface device error			
44-01-10	Warning	A hardware error occurred.	
Alarm Message: Interface application error			
44-01-11	Warning	A software error occurred.	
Alarm Message: Interface is off-line			
44-01-12	Warning	No host was detected. [This alarm is generated when documentation options are set to "Upload" or "Print/Upload", but the host communication is OFF (INTERFACE SETUP screen)].	a. Verify the host system is on. b. Verify the host system cable is firmly connected. c. Verify communication settings in the INTERFACE SETUP screen. d. Verify document settings in the DOCUMENTATION SETUP screen. d. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Inventory short (reagent)			
45-01-01	Stop	Assay reagent was inadequate; analyzer was unable to continue processing samples.	a. Check the number of tests remaining on the INVENTORY screen. Replace the appropriate reagent pack. b. Perform a Reagent Scan after replacement. If the error recurs, call Technical Support.
Alarm Message: Inventory short (assay reagent pack)			
45-01-02	Stop	There was no reagent pack on the R. Disk or all reagents on the R. Disk were inadequate.	
Alarm Message: Inventory short (BlankCell)			
45-04-01	Stop	The BlankCell R1 was inadequate.	a. Check the R1 or R2 position of the BlankCell reagent pack. Replace the BlankCell reagent pack, if necessary. b. Perform a Reagent Scan after replacement. If the error recurs, call Technical Support.
45-05-01	Stop	The BlankCell R2 was inadequate.	
Alarm Message: Inventory short (tip)			
45-06-01	Stop	Tips were inadequate for the analyzer to continue processing samples.	a. Replace the empty tip tray(s), if necessary. Perform a Reagent Scan. b. If the error recurs, call Technical Support.
Alarm Message: Inventory short (cup)			
45-07-01	Stop	Cups were inadequate for the analyzer to continue processing samples.	a. Replace the empty cup tray(s), if necessary. Perform a Reagent Scan. b. If the error recurs, call Technical Support.
Alarm Message: Inventory short (PC/CC)			
45-08-01	Stop	The volume of ProCell/CleanCell was inadequate for the analyzer to continue processing samples.	a. Check the percentage remaining on the INVENTORY screen. Replace the reagent bottle, if necessary. b. If the error recurs after replacement, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Incubator full			
46-01-01	R: A. Stop D: P. Stop	Incubator was full.	<ul style="list-style-type: none"> a. Perform a system reset from the MAINTENANCE screen. b. Start operation. c. If any cup is left in the incubator after initialization, call Technical Support.
Alarm Message: Too many assays (max 15)			
47-01-01	Stop	There are more than 15 assays on the analyzer.	<ul style="list-style-type: none"> a. Check the reagent packs on the R. Disk. Remove the appropriate number of assay reagent packs. b. Perform a Reagent Scan after removal. If the error recurs, call Technical Support.
Alarm Message: Too many diluents (max 8)			
47-01-02	Stop	There are more than eight diluent reagent packs on the analyzer.	<ul style="list-style-type: none"> a. Check the reagent packs on the R. Disk. Remove the appropriate number of diluent reagent packs. b. Perform a Reagent Scan after removal. If the error recurs, call Technical Support.
Alarm Message: Too many BlankCells (max 1)			
47-01-03	Stop	There is more than one BlankCell reagent pack on the analyzer.	<ul style="list-style-type: none"> a. Check the reagent packs on the R. Disk. Remove the appropriate number of BlankCell reagent packs. b. Perform a Reagent Scan after removal. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: System volume over range			
48-01-01	Warning	There was a possible sipper pipettor aspiration problem. It took too long for the ProCell to reach the measuring cell.	Call Technical Support.
Alarm Message: Abnormal aspiration			
49-01-01	Warning	Either the sample volume was insufficient or a clot was detected during sample pipetting at position "x." (Position "x" appears to the right of the alarm message on the screen or printout.)	a. Check the sample volume. b. Check the sample for clots. c. Repeat the sample. d. If the error recurs, call Technical Support.
Alarm Message: Bar-coded sample ID error			
50-01-01	Warning	A sample bar code label at position "x" was not scanned just prior to sampling; however, there was a label scanned at position "x" during the sample scan. (Position "x" appears to the right of the alarm message on the screen or printout.)	a. Verify that sample tubes are not removed until the STATUS screen reads "Remov." b. Verify that the sample bar code label is not damaged. c. Rerun the sample.
50-01-02	Warning	A sample bar code label at position "x" was scanned just prior to sampling; however, there was not a label scanned at position "x" during the sample scan. (Position "x" appears to the right of the alarm message on the screen or printout.)	
50-01-03	Warning	The information encoded in the sample bar code label at position "x" scanned just prior to sampling, is different from the information encoded in the label scanned at position "x" during the sample scan. (Position "x" appears to the right of the alarm message on the screen or printout.)	
Alarm Message: Non-bar-coded sample ID error			
50-02-01	Warning	A sample ID was registered at the position, but the bar code scan was unsuccessful.	a. Verify there is a sample in the position. b. Verify that the sample bar code label is not damaged. c. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: Gripper automatic adjustment failure			
51-01-01	Warning	A gripper failure occurred during an automatic adjustment.	Call Technical Support.
51-01-02	Warning	A gripper failure occurred during an automatic adjustment.	
Alarm Message: AC power fail			
52-01-01	Warning	AC power failure was detected.	a. Perform a system reset from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
Alarm Message: CPU error (level 1)			
53-01-01	Warning	This error occurs at power ON when the analyzer previously had a CPU lock up.	No action necessary. For information only.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: No calibrator card			
54-01-01	Warning	No calibrator card was read.	<ul style="list-style-type: none"> a. Perform a bar code card scan of the appropriate calibrator bar code card. b. If the error recurs, call Technical Support.
Alarm Message: CalSet expired			
54-01-02	Warning	The CalSet was expired.	<ul style="list-style-type: none"> a. Verify the expiration date of the appropriate CalSet. b. Replace the CalSet if necessary and initiate calibration again. c. If the expiration date on the CalSet is still valid, call Technical Support.
Alarm Message: No reagent pack available for calib.			
54-01-03	Warning	There was no reagent pack on the analyzer that can be used for calibration.	<ul style="list-style-type: none"> a. Verify that the appropriate reagent packs are on the reagent disk, especially pretreatment reagent. b. If all the appropriate reagent packs appear to be on the reagent disk and the alarm occurs again, call Technical Support.
Alarm Message: No calibration data was generated			
54-01-04	Warning	The CalSet was not complete; calibration did not occur.	<ul style="list-style-type: none"> a. Verify that there are complete (one Cal 1 and one Cal 2) and matched (both vials are of the same lot and for the same assay) CalSets on the sample disk or in racks. b. If all CalSets are complete and matching and the alarm occurs again, call Technical Support.
Alarm Message: STAT sample cancelled			
55-01-01	Warning	No tests were ordered for a STAT sample at position "x." (Position "x" appears to the right of the alarm message on the screen or printout.)	<ul style="list-style-type: none"> a. Verify the test selection for the STAT sample in the ORDERS screen or print a Status report.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: No more samples to process			
56-01-01	Warning	All samples were pipetted.	a. For information only. No action necessary.
Alarm Message: Serial no. check error			
57-01-01	Warning	The serial number read from the data disk is different from the serial number of the analyzer.	a. Verify you have the correct data disk in the analyzer. You cannot interchange data disks between analyzers. b. If you are using the correct data disk, call Technical Support.
Alarm Message: No valid reagent pack			
58-01-01	Warning	Improper reagent pack for the analyzer.	a. This reagent pack cannot be used on the analyzer, call Technical Support.
Alarm Message: No valid card			
58-01-02	Warning	Improper calibrator or control bar code card for the analyzer.	a. This CalSet or control cannot be used on the analyzer, call Technical Support.
Alarm Message: Maximum control data			
59-01-01	Warning	You cannot define more than 15 control lot combinations in the system.	a. You must delete a control from CONTROL DEFINITION before you can enter a new control. b. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: A-Line movement			
61-01-01	Stop	The A-Line pusher bar did not leave the home position during a reset.	a. Perform an L and A Reset All from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
61-01-02	Stop	The A-Line pusher bar did not reach or stop at the home position during a reset.	
61-01-04	L. Stop/Stop	The A-Line pusher bar did not reach or stop at the home position.	a. When the analyzer returns to Stand-by, perform an L and A Reset All from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
61-01-05	L. Stop/Stop	The A-Line pusher bar did not stop at the home position properly.	
61-01-06	L. Stop/Stop	The A-Line pusher bar did not stop at the rack detector and did not reach the rack loading end position.	
61-01-07	L. Stop/Stop	The A-Line pusher bar did not stop at the rack detector and did not stop at the rack loading end position properly.	
Alarm Message: A-Line: All racks were loaded			
61-02-01	R. Stop	All racks on the A-Line were loaded.	For information only. No action necessary.
Alarm Message: Tray missing on A-Line			
61-02-02	Warning	A tray was missing on the A-Line.	a. Place a tray on the A-Line. b. If a tray is on the A-Line, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: B-Line movement			
62-01-01	Stop	The B-Line pusher bar did not reach or stop at the home position during a reset.	a. Perform an L and A Reset All from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
62-01-02	Stop	The B-Line pusher bar did not reach or stop at the unloading position.	
62-01-03	Stop	The B-Line pusher bar did not reach or stop at the STAT position during a reset.	
62-01-04	L. Stop/Stop	The B-Line pusher bar did not reach the home position.	a. When the analyzer returns to Stand-by, perform an L and A Reset All from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
62-01-05	L. Stop/Stop	The B-Line pusher bar did not reach the rack receiver.	
62-01-06	L. Stop/Stop	The B-Line pusher bar did not reach the STAT position.	
62-01-07	L. Stop/Stop	A rack did not reach the bar code reading position on the B-Line.	
62-01-08	L. Stop/Stop	A rack did not reach the sampling position on the B-Line.	
62-01-09	L. Stop/Stop	The B-line pusher bar did not stop at the home position properly.	
62-01-10	L. Stop/Stop	The B-line pusher bar did not stop at the rack receiver.	
62-01-11	L. Stop/Stop	The B-line pusher bar did not stop at the STAT position properly.	
62-01-12	L. Stop/Stop	A rack did not stop at the bar code reading position on the B-Line properly.	
62-01-13	L. Stop/Stop	A rack did not stop at the sampling position on the B-Line properly.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: B-Line: No rack at receipt position			
62-02-03	Warning	There was no rack detected on the rack receipt position of the B-Line.	a. Verify there is a rack loaded at the receipt position on the B-Line. b. If the error recurs, call Technical Support.
Alarm Message: C-Line and buffer full			
62-02-04	Warning	No racks were forwarded to the C-Line because the C-Line and buffer were full.	a. Remove the full tray from the C-Line and replace it with an empty tray. b. If the C-Line and buffer are not full, call Technical Support.
62-02-05	Stop	No racks were forwarded to the C-Line during a reset because the C-Line and buffer were full.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: C-Line movement			
63-01-01	Stop	The C-Line pusher bar did not reach or stop at the home position during a reset.	a. Perform an L and A Reset All from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
63-01-02	Stop	The C-Line pusher bar did not reach or stop at the rack receipt position during a reset.	
63-01-03	L. Stop/Stop	The C-Line pusher bar did not stop at the home position.	a. When the analyzer returns to Stand-by, perform an L and A Reset All from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
63-01-04	L. Stop/Stop	The C-Line pusher bar did not reach the rack receipt position.	
63-01-05	L. Stop/Stop	The C-Line pusher bar did not stop at the home position properly.	
63-01-06	L. Stop/Stop	The C-Line pusher bar did not stop at the rack receipt position properly.	
63-01-07	Stop	The C-Line pusher bar was unable to send a rack to the buffer during a reset.	a. Perform an L and A Reset All from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
63-01-08	L. Stop	The C-Line pusher bar was unable to send a rack to the buffer position.	a. When the analyzer returns to Stand-by, perform an L and A Reset All from the MAINTENANCE screen. b. If the error recurs, call Technical Support.
Alarm Message: Tray missing on C-Line			
63-02-01	Warning	A tray was missing on the C-Line.	a. Place a tray on the C-Line. b. If a tray was in place on the C-Line, call Technical Support.
Alarm Message: C-Line tray is full			
63-02-02	Warning	The C-Line tray was full of racks.	a. Remove the full tray from the C-Line and replace it with an empty tray. b. If the tray is not full, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: No STAT rack			
71-01-01	Warning	There was no rack in the STAT rack position.	a. Place a rack in the STAT position. b. If there is a rack in the STAT position, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: B-Line: No cup/tube in rack			
72-01-01	Warning	There were no samples detected in the rack on the B-Line.	<ul style="list-style-type: none">a. Verify the presence of samples (cups or primary tubes) on the rack in question.b. If cups or tubes are loaded on the rack, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: DC power temp			
73-01-01	E. Stop	An abnormal temperature was detected in the DC power supply for the rack sampler.	<ul style="list-style-type: none"> a. Check that the room temperature is between 18 °C and 32 °C. b. When the analyzer returns to Stand-by, perform an L and A Reset All from the MAINTENANCE screen. c. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. d. If the error recurs, call Technical Support.
Alarm Message: DC24V low or DO4 F2			
73-01-02	E. Stop	A low DC +24V signal or a blown fuse on the DO4 circuit board was detected.	<p>There is potentially an electronic problem.</p> <ul style="list-style-type: none"> a. When the analyzer returns to Stand-by, perform an L and A Reset All from the MAINTENANCE screen. b. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. c. If the error recurs, call Technical Support.
Alarm Message: Serial comm CLK error			
73-01-03	E. Stop	A clock error in serial communication was detected.	<ul style="list-style-type: none"> a. Verify the host system cable is firmly connected. b. Verify communication settings in the INTERFACE SETUP screen. c. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. d. If the error recurs, call Technical Support.

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: PSCNT fuse			
73-01-04	E. Stop	A blown fuse was detected on the PSCNT circuit board.	There is potentially an electronic problem. a. Power the analyzer OFF at the circuit breaker, then ON. Before performing this step, refer to the Backup Data Disk heading on p. 3-7. b. If the error recurs, call Technical Support.
Alarm Message: DO4 or DO5 fuse (F1,F3-F7)			
73-01-05	E. Stop	A blown fuse was detected on the DO4 or DO5 circuit board.	
Alarm Message: DC power error			
73-01-06	E. Stop	An abnormal DC power supply was detected.	
Alarm Message: RSCNT fuse			
73-01-07	E. Stop	A blown fuse was detected on the RSCNT circuit board.	
Alarm Message: Line power failure			
73-01-08	E. Stop	A power failure was detected on the rack sampler.	

3.1 Instrument Alarms

ALARM NO.	ALARM CODE	CAUSE OR DESCRIPTION	REMEDY
Alarm Message: B-Line: BCR automatic adjustment fail			
74-01-01	Stop	The bar code reader automatic adjustment failed on the B-Line.	Call Technical Support.

Notes

Chapter 4

Maintenance

4.1 Maintenance Procedures Overview

Introduction

The following procedures are written for trained operators with a working knowledge of all instrument mechanical functions, software displays and software functions. The instrument must be provided with proper care and maintenance to ensure consistent and accurate functioning.

How to Use this Chapter

All maintenance procedures are listed in descending frequency. Each maintenance procedure is divided into two parts: the Introduction and the Procedure.

The **Introduction** provides important information about the procedure, which includes:

- recommended frequency
- materials required
- time required
- precautions.

The recommended frequency is based on using the analyzer 8 hours per day, 5 days per week. You may adjust your maintenance frequency based on your laboratory's actual usage.

The materials required provides you with a list of all materials needed to perform each procedure.

The time required includes both operator time and analyzer time, when appropriate.

Precautions are included for your protection.

The **Procedure** gives step-by-step directions for performing the required maintenance function. This part frequently is divided into smaller procedure blocks to help you organize your approach to maintenance.

Replacement Parts

A replacement part may be needed for a specific maintenance procedure. That part's description and catalog number are included in the **Materials Required** table of each procedure's **Introduction**. Please use the catalog number when ordering replacement parts. Remember, you are responsible for maintaining an adequate spare parts inventory.

For most efficient use of time, gather all required materials **before** starting the maintenance procedure.

4.1 Maintenance Procedures Overview

Maintenance Schedule

Detailed descriptions of the maintenance procedures listed below are found later in this chapter.

Daily

Clean S/R probe
Finalization maintenance

Weekly

Clean incubator and aspiration station
Clean sipper probe

Every 2 Weeks

Clean rinse stations for S/R probe, mixer and sipper probe
Perform Liquid Flow Cleaning

Monthly

Clean floppy disk drive

As Needed

Clean distilled water container
Clean liquid waste container
Clean ProCell/CleanCell Compartments
Clean reagent disk and compartment
Empty solid waste
Replace pinch valve tubing (PM visit)
Replace pipettor seals (PM visit)
Replace printer paper
Replace printer ribbon

4.2 Clean S/R Probe

Introduction

Dirt on the sample/reagent (S/R) probe may cause contamination and carryover, and affect results. Clean this part daily to prevent contamination.

Recommended frequency: Daily

Operator time: Approximately 1 minute.

Analyzer time: None.

Precautions: The operation switch must be OFF.



DO NOT clean the mixer. Cleaning the mixer may alter the adjustments and cause movement errors.

Materials Required	Catalog Number
Gauze squares	obtain locally
Distilled or deionized water	-----
70% isopropyl alcohol	obtain locally

Procedure

1. Move the S/R probe to an area where you can readily access it.



Power must be off to move analyzer components. If power is on, the motors are engaged and attempted movement may damage these components.

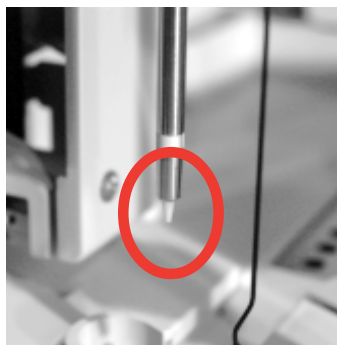
2. Wipe the outer surfaces of the S/R probe and probe tip with a gauze square soaked in distilled or deionized water.



Do not bend the probe during cleaning! Be careful to not damage the lower end of the S/R probe. See below.



Wipe S/R probe





S/R probe tip

4.2 Clean S/R Probe

3. If the probe appears dirty, wipe the outer surfaces with a gauze square soaked in 70% isopropyl alcohol. Follow with a gauze square soaked in distilled or deionized water.
4. When you power ON the analyzer, it performs the start-up reset operation, and each mechanism returns to its home or Stand-by position.

4.3 Finalization Maintenance

Introduction

Finalization is the analyzer status that occurs between the time when the analyzer stops pipetting samples (S. Stop or R. Stop) and Stand-by. Pressing  when the analyzer status is in S. Stop or R. Stop bypasses finalization and puts the analyzer directly into Stand-by. If the Elecsys 2010 analyzer does not automatically enter finalization status during the course of the day (i.e., continuously loading the analyzer or pressing ) , you must initiate finalization maintenance.

Finalization allows the analyzer to stand unused for several hours (e.g., overnight). The system is primed with water, the measuring cell is filled with ProCell and the sipper probe is cleaned with water.





Recommended frequency: Daily, if the analyzer does not automatically enter finalization during the course of the day.

Operator time: Approximately 30 seconds.

Analyzer time: Approximately 5 minutes.

Precautions: None.

Procedure

1. Touch the  folder tab.
2. Touch the  button.
3. Touch the  button to access the 'Finalization Maintenance' pop-up window.
4. Touch .

4.4 Clean Incubator and Aspiration Station

Introduction

Spills on the incubator could cause gripper movement alarms. The incubator and aspiration station should be cleaned weekly.

Recommended frequency: Weekly.

Operator time: Approximately 5 minutes.

Analyzer time: None.

Precautions: The operation switch must be OFF.



DO NOT use an acid solution or an alkaline solution to clean the system reagent compartment. The compartment is made of aluminum and these solutions degrade the metal.

Materials Required	Catalog Number
Gauze squares Cotton swabs Distilled or deionized water	obtain locally obtain locally -----

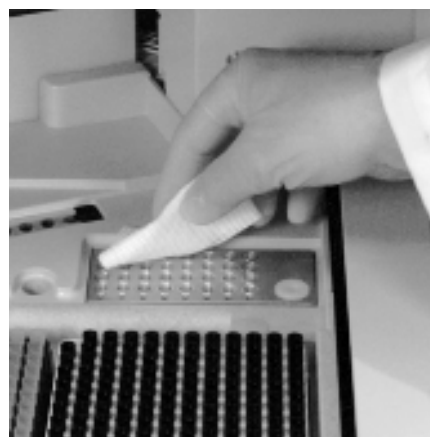
Procedure

1. Move the S/R arm to the far left and the gripper toward the front of the analyzer. Move the sipper arm to the far right.



Power must be off in order to move analyzer components. If power is on, the motors are engaged and attempted movement may damage these components.

2. Clean the top of the incubator with gauze squares dampened with distilled or deionized water.
3. If the incubator appears dirty, use a slight scrubbing motion with the water-soaked gauze squares. **DO NOT** use an acid solution or an alkaline solution to clean the incubator. The incubator is made of aluminum and these solutions degrade the metal.



Wipe incubator surface

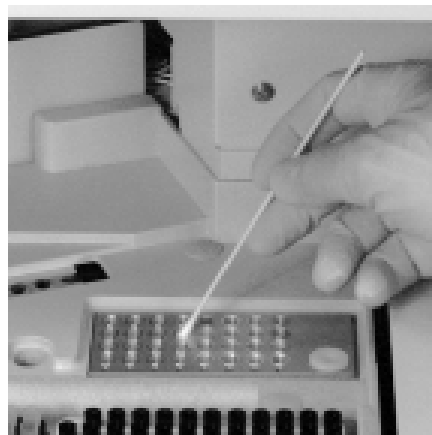
4.4 Clean Incubator and Aspiration Station

4. Next, wet a cotton swab with distilled or deionized water and swab each of the 32 positions on the incubator, as well as the aspiration station.
5. Use a dry gauze square to dry the incubator when you are finished cleaning.



Make sure that the incubator surface and its positions are dry or you may experience gripper problems when you resume operation.

6. When you power ON the analyzer, it performs the start-up reset operation, and each mechanism returns to its home or Stand-by position.



Swab incubator positions

4.5 Clean Sipper Probe

Introduction

Dirt on the sipper probe may cause contamination and carryover, and affect results. Clean this part weekly to prevent contamination.

Recommended frequency: Weekly

Operator time: Approximately 1 minute.

Analyzer time: None.

Precautions: The operation switch must be OFF.

Materials Required	Catalog Number
Gauze squares	obtain locally
Distilled or deionized water	-----
70% isopropyl alcohol	obtain locally

Procedure

1. Move the sipper probe to an area where you can readily access it.

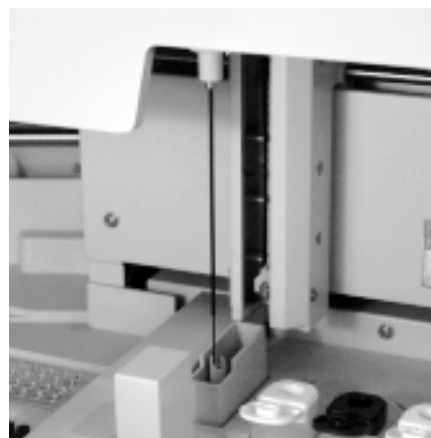


Power must be off to move analyzer components. If power is on, the motors are engaged and attempted movement may damage these components.

2. Wipe the outer surfaces of the sipper probe with a gauze square soaked in 70% isopropyl alcohol. Follow with a gauze square soaked in distilled or deionized water.



Do not bend the probe during cleaning! Be careful to not damage the lower end of the sipper probe.



Sipper probe

3. When you power ON the analyzer, it performs the start-up reset operation, and each mechanism returns to its home or Stand-by position.

4.6 Clean Rinse Stations for S/R Probe, Mixer and Sipper Probe

Introduction

Contamination in the rinse stations for the S/R probe, the mixer and the sipper probe can be responsible for carryover. To prevent contamination, clean the rinse stations every two weeks.

Recommended frequency: Every two weeks.

Operator time: Approximately 10 minutes.

Analyzer time: None.

Precautions: The operation switch must be OFF.



Any component that comes into contact with sample fluids is potentially biohazardous and should be handled in an appropriate manner. Wear protective gloves when handling these materials.

Materials Required	Catalog Number
Cotton swabs 70% isopropyl alcohol Syringe with attached tubing Distilled or deionized water (approximately 300 mL)	obtain locally obtain locally obtain locally -----

Procedure

1. Move the S/R probe, the mixer and the sipper probe to an area away from the rinse stations.



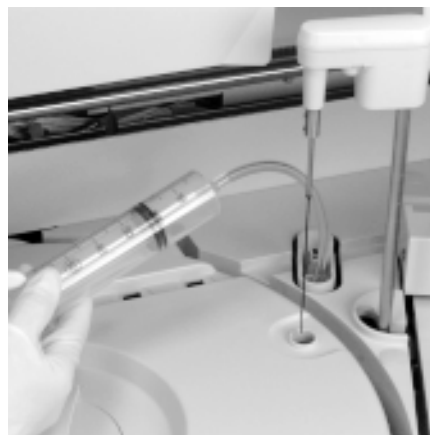
Power must be off in order to move analyzer components. If power is on, the motors are engaged and attempted movement may cause damage to these components.



**Move component away
from rinse station**

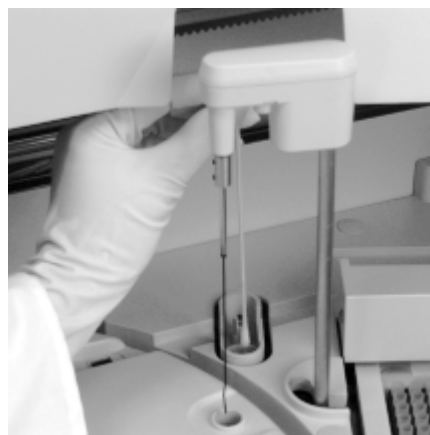
4.6 Clean Rinse Stations for S/R Probe, Mixer and Sipper Probe

2. Take a syringe with tubing attached to its end (as in the photo on the right) and aspirate the water out of the mixer rinse station.
3. Use a cotton swab soaked in 70% isopropyl alcohol to thoroughly clean the S/R probe, mixer and sipper rinse stations.
4. Take another cotton swab soaked in distilled or deionized water and wipe the rinse stations again.



Aspirate/refill the rinse stations

5. Fill the syringe with distilled or deionized water and refill the mixer rinse station. This should take approximately 50-100 mL of water. Also, flush the S/R probe and sipper rinse stations with water (50-100 mL).
6. Aspirate the water out of the mixer rinse station again using the syringe.
7. Refill the mixer rinse station and flush all the rinse stations with distilled or deionized water one final time.
8. When you power ON the analyzer, it performs the start-up reset operation, and each mechanism returns to its home or Stand-by position.



Swab mixer rinse station



You may want to use two syringes for this procedure – one for aspirating liquid and the other for refilling the rinse stations.

4.7 Perform Liquid Flow Cleaning

Introduction

Contamination in the sipper system could potentially degrade sample accuracy and precision, or possibly block the measuring cell flowpath. To keep the sipper liquid flowpath clean and maintain the integrity of the measuring cell, perform a liquid flow cleaning every two weeks. High volume analyzers may require more frequent cleaning.

Recommended frequency: Every two weeks or after 2500 - 3000 tests, whichever comes first.

Operator time: Approximately 12 minutes.

Analyzer time: Approximately 16 minutes.

Precautions:

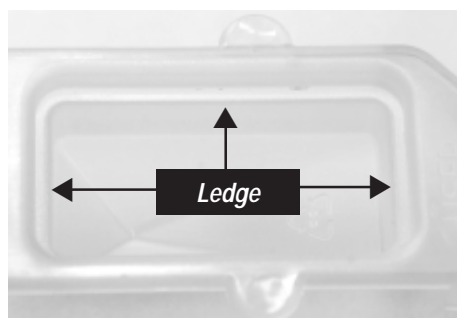


CAUTION. WARNING. CORROSIVE. SysClean causes severe burns. Keep out of reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical attention. Remove all contaminated clothing immediately. Wear suitable gloves and eye/face protection.

Materials Required	Catalog Number	
	US	Non-US
SysClean	1298500	1298500-316
SysClean adapter	1933159	1933159

Pre-Cleaning Steps

1. Remove the ProCell bottle from position 3 of the system reagent compartment.
2. Fill the "USER" compartment (smaller compartment) of the SysClean adapter to the ledge of the compartment with SysClean reagent (approx. 9 mL).



Location of ledge in "USER" compartment of adapter

4.7 Perform Liquid Flow Cleaning

3. **Carefully**, insert the filled SysClean adapter into position 3 of the system reagent compartment with the edge marked "USER" facing the back of the analyzer.



If you spill SysClean reagent on the analyzer, immediately clean the spill with distilled or deionized water.



SysClean adapter in position 3

4. Remove the liquid waste container and **thoroughly clean** it with distilled or deionized water.



SysClean reagent combined with the contents of the liquid waste container could cause potentially harmful fumes.



If necessary, refer to Section 4.10, Clean Liquid Waste Container, for additional information on cleaning the liquid waste container.

5. Verify ProCell/CleanCell bottles are in positions 1, 2 and 4. Also, verify the bottle lids are open and that there is adequate liquid in the bottles in positions 1 and 2.

Initiate Cleaning

1. Touch the **Util** folder tab.
2. Touch the **Maintenance** button.
3. Touch the **Liquid Flow Cleaning** button to access the 'Liquid Flow Cleaning' pop-up window.
4. Touch the Liquid flow cleaning count field.
5. Type "1" and press **Enter**.
6. Touch **Start**. The pop-up window closes and the system begins cleaning the sipper liquid flowpath.

4.7 Perform Liquid Flow Cleaning

Post-Cleaning Steps

1. When the analyzer returns to Stand-by, remove the liquid waste container and **thoroughly rinse** it with distilled or deionized water. Return the liquid waste container to the analyzer.



SysClean reagent combined with the contents of the liquid waste container could cause potentially harmful fumes.



If necessary, refer to Section 4.10, Clean Liquid Waste Container, for additional information on cleaning the liquid waste container.

2. Remove the SysClean adapter and properly discard any remaining SysClean. **Thoroughly rinse** the adapter.



If you spill SysClean reagent on the analyzer, immediately clean the spill with distilled or deionized water.

3. Return the ProCell bottle to position 3 of the system reagent compartment.

4.8 Clean Floppy Disk Drive

Introduction

Clean the floppy disk drive monthly to optimize the performance of the disk drive.

Recommended frequency: Monthly.

Operator time: Approximately 2 minutes.

Analyzer time: Approximately 30 seconds.

Precautions: The analyzer must be in Stand-by.

Materials Required	Catalog Number
Disk cleaning kit (dry)	707422200

Procedure





1. Verify the analyzer is in Stand-by.
2. Remove the data disk from the drive and set aside.



Verify the drive is not active (green light is on) before you remove the data disk.



Failure to replace the data disk with the cleaning disk results in the LOSS OF ALL DATA ON THE DATA DISK.

3. Touch the  folder tab.
4. Touch the  button.
5. Touch the  button to access the 'FDD Cleaning' pop-up window.
6. Insert the dry cleaning disk in the drive.
7. Touch .



Each cleaning disk is good for 60 cleanings. After each cleaning procedure, check one box on the disk label. After all the boxes are checked (60 cleanings), use a new cleaning disk.

8. When the analyzer returns to Stand-by, remove the cleaning disk and return the data disk to the drive.

4.9 Clean Distilled Water Container

Introduction

A contaminated distilled water container can adversely affect analyzer performance. Clean the distilled water container as needed.

Recommended frequency: As needed.

Operator time: Approximately 10 minutes.

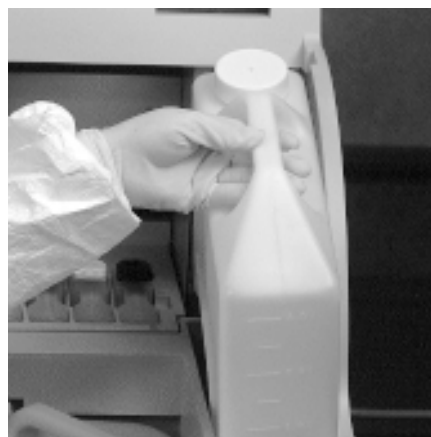
Analyzer time: None.

Precautions: The analyzer must be in Stand-by or turn OFF the operation switch.

Materials Required	Catalog Number
Gauze squares Cleaning brush Paper towels 70% isopropyl alcohol	obtain locally obtain locally obtain locally obtain locally

Procedure

1. Raise and remove the distilled water container.
2. Remove the cap and discard any water remaining inside.
3. Rinse the container with water, then follow with distilled or deionized water.
4. If the inside of the container appears dirty or contaminated use a large cleaning brush immersed in 70% isopropyl alcohol to scrub the interior of the container. Rinse thoroughly with distilled or deionized water.



Remove distilled water container

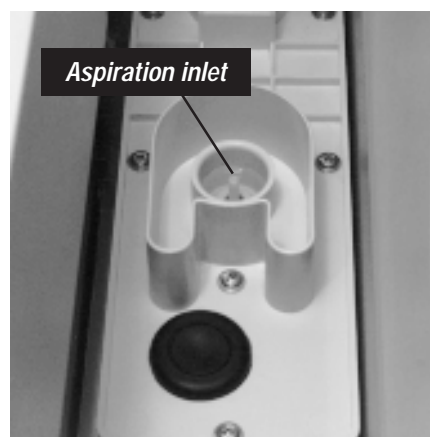
4.9 Clean Distilled Water Container

5. Remove the valve on the bottom of the distilled water container.
6. Clean the valve with a wet brush, then rinse with distilled or deionized water. If the valve appears dirty, use a brush immersed in 70% isopropyl alcohol to clean the valve. Then, rinse thoroughly with distilled or deionized water.



Valve

7. Use a gauze square to wipe and clean the aspiration inlet for distilled or deionized water supply, located on the analyzer.
8. Connect the valve on the container bottom and fill the container with distilled or deionized water. Then, dry the outside of the container with paper towels, attach the cap to the container and return the container to the analyzer.



Aspiration inlet

4.10 Clean Liquid Waste Container

Introduction

A full liquid waste container causes an alarm and interrupts operation. The liquid waste container must be checked and emptied as needed.

Recommended frequency: As needed.

Operator time: Approximately 5 minutes.

Analyzer time: None.

Precautions: The analyzer must be in Stand-by or turn OFF the operation switch. Do not touch the **System Reset** or **Reagent Scan** buttons, or power ON the analyzer while cleaning the liquid waste container.



Any component that comes into contact with sample fluids is potentially biohazardous and should be handled in an appropriate manner. Wear protective gloves when handling these materials.

Materials Required	Catalog Number	
	US	Non-US
70% isopropyl alcohol Paper towels optional - germicidal agent (pH - 9)	obtain locally obtain locally obtain locally	obtain locally obtain locally READES 2000

Procedure

1. Pull the liquid waste container toward you, cap it and raise it carefully, while avoiding the liquid waste outlet.
2. Place a folded paper towel under the waste outlet to catch any waste droplets that may fall.
3. Empty the container and rinse it thoroughly with water.
4. If the inside of the container appears dirty, use 70% isopropyl alcohol to rinse the container. Follow with a thorough water rinse.
5. Wipe the outside of the container with a paper towel.



Remove liquid waste container

4.10 Clean Liquid Waste Container

6. Use a paper towel to wipe the compartment where the container is to be placed.
7. OPTIONAL – Add the appropriate volume of a germicidal agent with a pH - 9 (as directed in its product labeling) to the liquid waste container.



DO NOT USE BLEACH in the liquid waste container. Bleach combined with the contents in the liquid waste could cause potentially harmful fumes.

8. Remove the paper towel under the waste outlet and replace the liquid waste container. Push the container forward so that the container opening is under the liquid waste outlet. Be sure to remove the cap.

4.11 Clean ProCell/CleanCell Compartments

Introduction

The system reagent compartment should be cleaned as needed to eliminate spills from the ProCell and CleanCell reagents.

Recommended frequency: As needed.

Operator time: Approximately 5 minutes.

Analyzer time: None.

Precautions: The operation switch must be OFF.



DO NOT use an acid solution or an alkaline solution to clean the system reagent compartment. The compartment is made of aluminum and these solutions degrade the metal.

Materials Required	Catalog Number
Gauze squares Distilled or deionized water	obtain locally -----

Procedure

1. Move the sipper arm as far to the left as the arm will allow.



Power must be off in order to move analyzer components. If power is on, the motors are engaged and attempted movement may damage these components.

2. Remove the ProCell and CleanCell reagent bottles.

3. Wipe the inside of the compartments with damp, not wet, gauze squares. **DO NOT** allow water to pool in the bottom of the compartments. Take care to avoid the photosensors in compartment positions 2 and 3. These sensors check for the presence of the ProCell/CleanCell bottle sets. They appear as rectangular windows located at the back of the compartment, just below the top edge. If you should get the sensors wet, use a cotton swab to dry them.



Wipe ProCell/CleanCell compartments

4.11 Clean ProCell/CleanCell Compartments

4. Wipe the compartment with a dry gauze square.
5. Return the ProCell and CleanCell reagents to their respective system reagent compartments.
6. When you power ON the analyzer, it performs the start-up reset operation, and each mechanism returns to its home or Stand-by position.

4.12 Clean Reagent Disk and Compartment

Introduction

Reagent spills should be cleaned up as they occur. The reagent disk and compartment must be cleaned as needed.

Recommended frequency: As needed.

Operator time: Approximately 15 minutes.

Analyzer time: None.

Precautions: The operation switch must be OFF.



Any component that comes into contact with sample fluids is potentially biohazardous and should be handled in an appropriate manner. Wear protective gloves when handling these materials.

Materials Required	Catalog Number
Gauze squares	obtain locally
Distilled or deionized water	-----
70% isopropyl alcohol	obtain locally
Cloth or lint-free towels	obtain locally

Clean the Reagent Disk

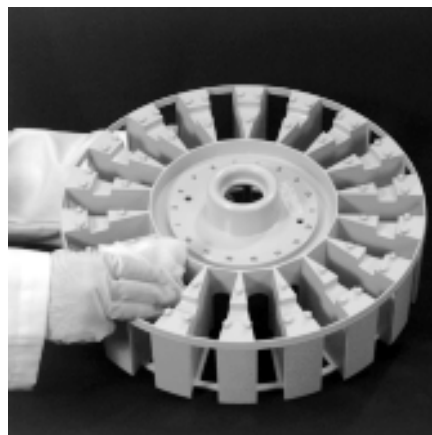
1. Remove the cover from the reagent disk.
2. Loosen and remove the black thumbscrews on the center of the reagent disk.
3. Completely close the reagent pack caps and remove all the reagent packs from the reagent disk.
4. Remove the reagent disk from the compartment.



Loosen and remove thumbscrews


4.12 Clean Reagent Disk and Compartment

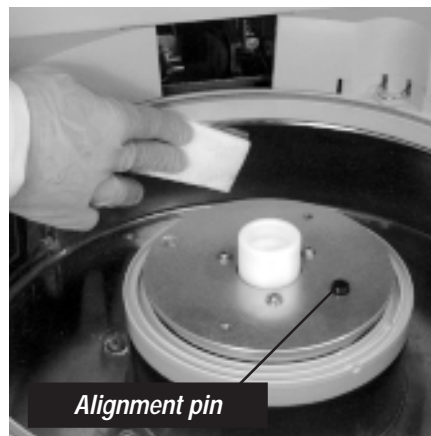
5. Wipe the inside and outside of the reagent disk with gauze squares soaked with distilled or deionized water.
6. If the disk appears dirty, use gauze squares soaked with 70% isopropyl alcohol to clean the disk. Follow with gauze squares soaked with distilled or deionized water.
7. Dry the reagent disk with a cloth or lint-free towels. Set the reagent disk aside.



Clean the inside of the reagent disk

Clean the Reagent Disk Compartment

1. Wipe the reagent disk compartment with gauze squares soaked with distilled or deionized water.
-  **Take care not to scratch or smear the bar code reader window.**
2. If the compartment appears dirty, use gauze squares soaked with 70% isopropyl alcohol to clean the compartment. Follow with gauze squares soaked with distilled or deionized water.



Clean the reagent disk compartment

3. Dry the reagent disk compartment with a cloth or lint-free towels.
4. Return the reagent disk to the compartment. The disk is keyed; make sure that the alignment pin on the center plate (refer to photo above) is aligned with the hole on the disk.
6. Securely reinstall the thumbscrews.
7. Place the reagent packs back into the reagent disk.
8. Replace the reagent disk cover and lock.

4.13 Empty Solid Waste

Introduction

During operation, the solid waste tray is filled with disposed tips and cups. The solid waste tray must be checked and emptied as needed.

Recommended frequency: As needed.

Operator time: Approximately 2 minutes.

Analyzer time: None.

Precautions: The analyzer must be in Stand-by or turn OFF the operation switch. Do not touch the **System Reset** or **Reagent Scan** buttons, or power ON the analyzer while changing the Clean-Liner.



Any component that comes into contact with sample fluids is potentially biohazardous and should be handled in an appropriate manner. Wear protective gloves when handling these materials.

Materials Required	Catalog Number
Clean-Liner	1800507

Procedure

1. Open the door below the tip and cup trays, pull out the tray. Remove and dispose of the Clean-Liner.



The Clean-Liner has a clear sliding door. Slide the door to close the Clean-Liner.

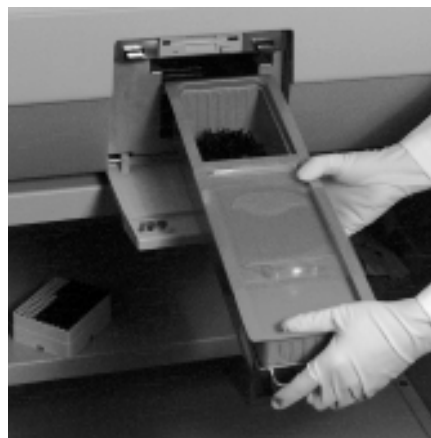


The Clean-Liner contains potentially biohazardous material. Dispose of the Clean-Liner appropriately.

2. Place a fresh Clean-Liner into the tray. Verify that the sliding door is open and that the opening is located at the back of the tray.
3. Replace the tray in the analyzer and close the door.



The counter for the solid waste resets to "0" when the tray is removed.



Remove solid waste tray and liner

4.14 Replace Pinch Valve Tubing (PM Visit)

Introduction

Worn pinch valve tubing allows liquid to leak, thereby affecting the accuracy of the pipetting volumes and the ability to properly clean the measuring cell. The pinch valve tubing are replaced by your service representative during scheduled preventive maintenance (PM) visits. However, should the tubing require replacement between visits, instructions are provided below.

Recommended frequency: At PM visits or as needed.

Operator time: Approximately 2 minutes.

Analyzer time: Approximately 10 minutes.

Precautions: The operation switch must be OFF while changing the tubing.



Any component that comes into contact with sample fluids is potentially biohazardous and should be handled in an appropriate manner. Wear clean, protective gloves when changing pinch valve tubing.

Materials Required	Catalog Number	
	US	Non-US
Pinch valve tubing	741-1610 (2 ea)	741-1592 (1 m)

Purge the Tubing of Liquid

1. Touch **Util**.
2. Touch **Maintenance**.
3. Touch **M. Cell Exchange** to access the 'Measuring Cell Exchange' pop-up window.
4. Touch **Start**. The tubing is purged of liquid.
5. When the analyzer returns to Stand-by, power it OFF.

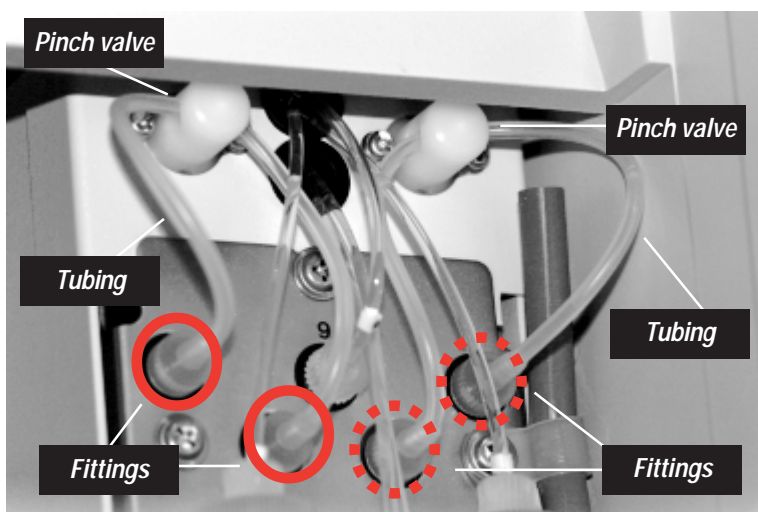
4.14 Replace Pinch Valve Tubing (PM Visit)

Remove the Tubing from the Fittings

The pinch valve tubing and fittings are located above the S/R and sipper pipettors. Refer to the reference point photograph at the right and then to the enlarged view of the area in the photograph below.



Reference point for pinch valve tubing



Enlarged view of pinch valve tubing and fittings

1. **Carefully** remove the tubing from the fittings on the metal plate.



There may still be some liquid in the tubing. The liquid that flows through this tubing comes from the measuring cell and is potentially biohazardous. Wear gloves.

2. Remove the tubing from the pinch valve and discard.
3. Take a new piece of tubing and insert it through the pinch valve. Verify the tubing length is 180 mm. If not, cut the tubing to that length.

4.14 Replace Pinch Valve Tubing (PM Visit)






4. **Carefully** slide the ends of the tubing over each of the fittings. In the photo on the previous page, one set of fittings is shown with solid red circles and the other pair of fittings is shown with dotted red circles.



Make sure that you do not damage the fitting when replacing the tubing.

5. Repeat the procedure for the other pinch valve tubing.

Prime the Measuring Cell

1. Power ON the analyzer.
2. Touch .
3. Touch .
4. Touch the  button to access the 'M. Cell Preparation' pop-up window.
5. Touch the M. Cell preparation count field.
6. Type "10" and press .
7. Touch . The pop-up window closes and the system begins priming the measuring cell with ProCell. While the system is priming, check for leaks at the fittings and on the tubing.

4.15 Replace Pipettor Seals (PM Visit)

Introduction

A worn seal piece allows liquid to leak, thereby affecting the accuracy of the pipetting volumes. The seals on the S/R and sipper pipettors are replaced by your service representative during scheduled preventive maintenance (PM) visits. However, should the seals require replacement between visits, instructions are provided below.

Recommended frequency: At PM visits or as needed.

Operator time: Approximately 15 minutes.

Analyzer time: Approximately 5 minutes.

Precautions: The operation switch must be OFF while changing the seals.

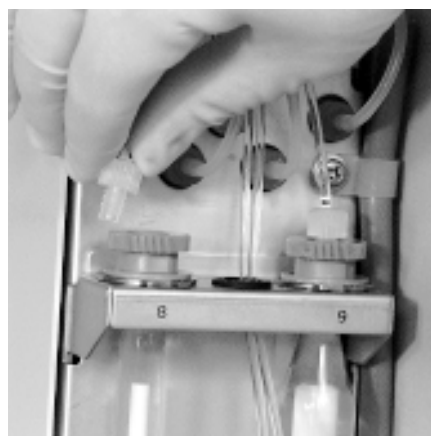


Any component that comes into contact with sample fluids is potentially biohazardous and should be handled in an appropriate manner. Wear clean, protective gloves when changing pipettor seals.

Materials Required	Catalog Number	
	US	Non-US
S/R pipettor seal	741-1302	1708716-001
Sipper pipettor seal	741-1303	1708724-001
Spanner wrench	741-0919	1901907-001
Absorbent towels	obtain locally	obtain locally
Gauze squares	obtain locally	obtain locally
Distilled or deionized water	-----	-----
70% isopropyl alcohol	obtain locally	obtain locally

Disassemble Pipettor

1. Disconnect the tubing at the top of the pipettor assembly by turning its retaining nut counterclockwise.



Loosen pipettor retaining nut

4.15 Replace Pipettor Seals (PM Visit)

2. Hold a dry gauze square or other absorbent material next to the side tubing of the pipettor; disconnect this tubing by turning its retaining nut counterclockwise. Use the gauze square to absorb water as it drains from the tubing.



Disconnect tubing

3. Loosen the knurled locking screw from the top of the pipettor assembly by turning it counterclockwise.



*For the sipper pipettor – loosen and **REMOVE** the locking screw to prevent damage to the glass barrel.*



Loosen knurled locking screw

4.15 Replace Pipettor Seals (PM Visit)

4. Carefully pull the pipettor assembly out of its mounting block. With one hand, support the glass barrel. With the other hand, grasp the pipettor holder and lift up, then out to remove the assembly. Make sure the plunger is removed from the U-shaped slot.



Avoid touching the top of the glass barrel.

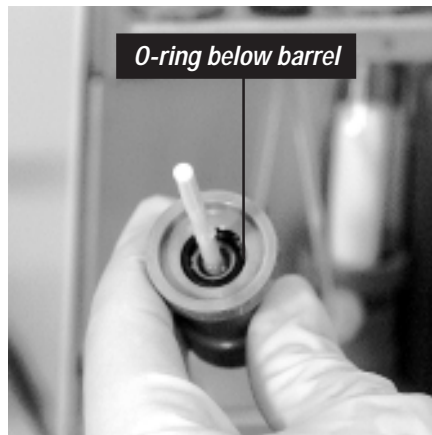


For sipper pipettor – pull the plunger down far enough so that you can lift out the glass barrel. Then remove the remaining pipettor assembly.

5. Remove the glass pipettor barrel. Set it aside in a safe place. Remove the o-ring that fits below the pipettor barrel and set in a safe place.



Remove pipettor assembly



Remove o-ring

4.15 Replace Pipettor Seals (PM Visit)

Expose Pipettor Seal

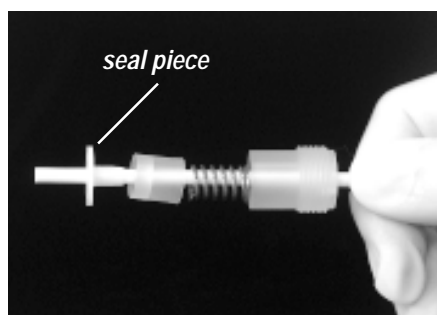
1. Turn the pipettor holder upside down and expose the plunger retaining screw.
2. Apply the spanner wrench to the plunger retaining screw and turn the screw counterclockwise until it is loose.
3. Turn the pipettor holder right side up and carefully lift the pipettor holder off of the plunger. Leave all parts on the plunger.



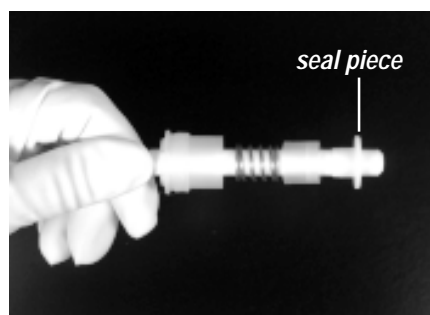
Remove pipettor holder

Replace Pipettor Seal

1. Remove the seal piece, press piece, spring and retaining screw from the plunger. Dispose of the seal piece.
2. Wipe the plunger with a gauze square soaked in 70% isopropyl alcohol to remove any debris. Follow with a gauze square soaked with distilled or deionized water.



Remove S/R pipettor seal piece

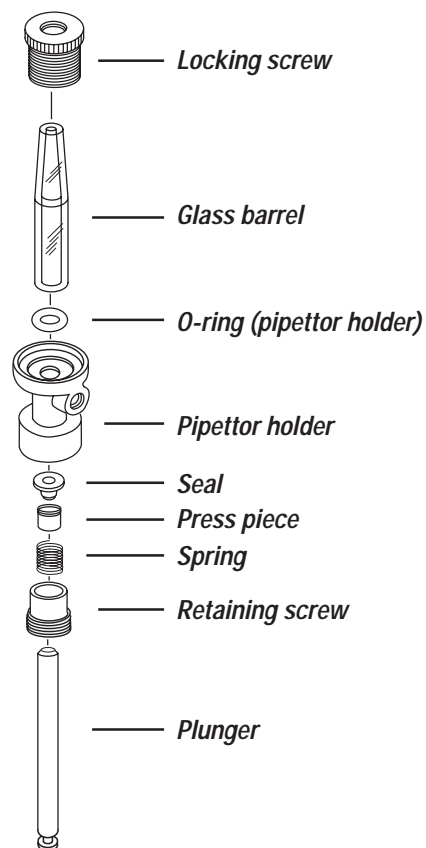


Remove sipper pipettor seal piece

4.15 Replace Pipettor Seals (PM Visit)

3. Ensure that the retaining screw, spring and press piece are properly positioned on the plunger. Place the new seal on the plunger, verifying the rounded end is down. Refer to the graphic on the right for the correct order of the individual parts.

Although the actual components of the sipper pipettor may not be the same size as those of the S/R pipettor, they are assembled in the same order.



Pipettor assembly order

4. Place the plunger back in the pipettor holder with the pipettor vertically oriented. Tighten the retaining screw with the spanner wrench until the screw is snug with the pipettor holder.



Do not overtighten the pipettor retaining screw.



Tighten retaining screw

4.15 Replace Pipettor Seals (PM Visit)

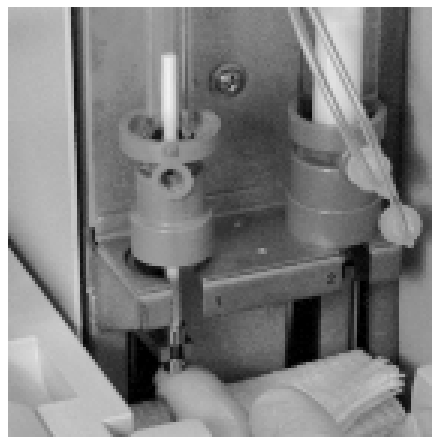
Reassemble Pipettor

1. Place the pipettor holder o-ring into the pipettor holder. If the o-ring appears damaged or worn, replace it.
2. Inspect the glass pipettor barrel for chips or cracks at the top and bottom. If the pipettor barrel is etched or damaged in any way, replace it. Place the pipettor barrel over the plunger and onto the pipettor holder. It is easier to place the barrel back on if the barrel and pipettor holder are dry.
3. Return the pipettor holder onto its mounting block by tilting the top of the pipettor toward the instrument. Ensure that the pipettor holder is in the recess on the top surface of the mounting block.



If the pipettor holder is not properly seated in its mounting block recess, damage to the pipettor assembly may occur.

5. The notched (bottom) end of the plunger must be secured within the U-shaped notch of the stepper motor.
6. Rotate the pipettor holder until the side tube port is positioned to accept the pipettor tubing.
7. Finger-tighten the top knurled locking screw. Ensure that the pipettor assembly is seated correctly (not loose or crooked) and the glass barrel o-ring is properly positioned.



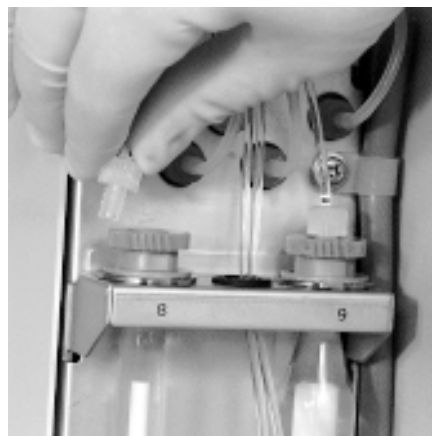
Secure plunger in notch

8. Reconnect the pipettor's top tubing and finger-tighten its retaining nut.



The top and side tubing retaining nuts can be damaged if excessive force is applied when replacing them. Take care not to cross-thread these nuts.






9. Reconnect the side tubing and finger-tighten its retaining nut.
10. Turn the instrument power ON.



Replace retaining nut

4.15 Replace Pipettor Seals (PM Visit)

Prime the Pipettors






1. Access the MAINTENANCE screen after initialization is complete. First touch the  button. This accesses the pop-up window.
2. Touch the priming cycles field, type 10 and press .
3. Touch . The liquid system is purged of air.
4. During priming, check the pipettor and tubing connections for leaks. The plunger should be in the correct position and must be moving up and down continuously.
5. If air bubbles are found on the plunger, gently tap on the glass barrel to remove the air bubbles. If this is not successful, remove the pipettor and thoroughly clean the plunger again with a gauze square soaked in 70% isopropyl alcohol.
6. Repeat steps 1 - 5, if necessary.
7. When you change the sipper pipettor seal, repeat steps 1 - 6, but touch the  button instead of .



The sipper pipettor plunger does not move up and down during a sipper prime.

Prime the Measuring Cell

If you perform a sipper pipettor prime, you must also prime the measuring cell.

1. Touch .
2. Touch .
3. Touch the  button to access the 'M. Cell Preparation' pop-up window.
4. Touch the M. Cell preparation count field.
5. Type "5" and press .
6. Touch . The pop-up window closes and the system begins priming the measuring cell with ProCell.

4.16 Other As Needed Maintenance Procedures

Introduction

There are two other as needed maintenance procedures. They are to replace the printer paper and to replace the printer ribbon.

Replace Printer Paper

For the USA, please refer to the US Supplement for the procedure to replace the printer paper.

For all others, please refer to your printer documentation.

Replace Printer Ribbon

For the USA, please refer to the US Supplement for the procedure to replace the printer ribbon.

For all others, please refer to your printer documentation.

4.17 Extended Power OFF Recommendations

Introduction

If the 2010 analyzer will not be used for an extended period of time (i.e., > 7 days), contact Technical Support. Different shutdown procedures are recommended depending upon the duration of inactivity. In addition, certain procedures require the assistance of a Roche Diagnostics service representative.

Chapter 5

Spare Parts

5.1 Spare Parts Overview

Introduction

The following pages list the catalog number, reference name and common name for each accessory and user replaceable part. The common names have evolved over the course of time and use of the systems and are included for your convenience.

Ordering Information

When ordering replacement parts, please use the ***catalog number*** and ***reference name*** for each item to ensure that you receive the correct part.

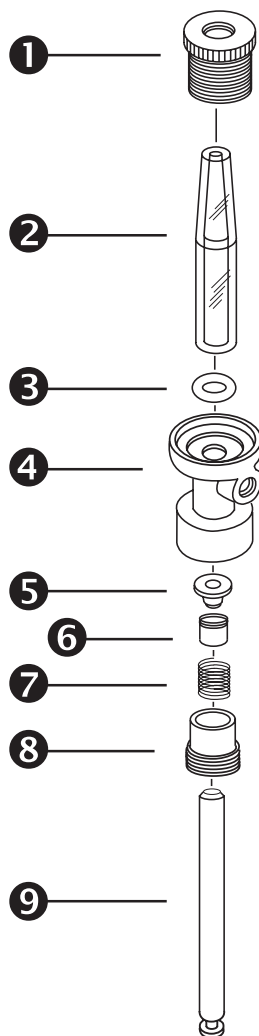
Remember, you are responsible for maintaining an adequate inventory of parts in your accessory kit.

5.2 Accessory and User Replaceable Parts

Sample/Reagent Pipettor

Item	Catalog Number		Reference Name	Common Name
	USA	Non-US		
1	736-3015	0909106	Nut	Locking screw
2	037105600	1701998	Syringe	Glass barrel
3	038012800	0989142	O-ring #P9	O-ring (pipettor holder)
4	736-3029	0990027	Body	Pipettor holder
5	741-0901 <input checked="" type="checkbox"/>	1708716 <input checked="" type="checkbox"/>	Seal Spacer P.	Seal
6	741-1304	741-1304	Press Spacer P.	Press piece
7	725186200	1227149	Spring	Spring
8	741-1311	741-1311	Screw P.	Retaining screw
9	741-1300	1708694	Plunger P.	Plunger

☒ Part of accessory kit.

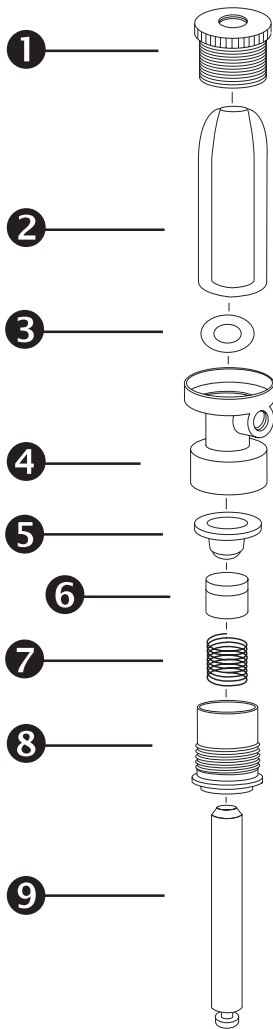


5.2 Accessory and User Replaceable Parts

Sipper Pipettor

Item	Catalog Number		Reference Name	Common Name
	USA	Non-US		
1	736-3015	0909106	Nut	Locking screw
2	741131300	1809008	Syringe S.	Glass barrel
3	037027600	479128	O-ring #P16	O-ring (pipettor holder)
4	741-1312	741-1312	Body S.	Pipettor holder
5	741-0902 <input checked="" type="checkbox"/>	1708724 <input checked="" type="checkbox"/>	Seal Spacer S.	Seal
6	741-1305	741-1305	Press Spacer S.	Press piece
7	741-1307	741-1307	Spring S.	Spring
8	741-1306	741-1306	Screw S.	Retaining screw
9	741130100	1708708	Plunger S.	Plunger

☒ Part of accessory kit.



5.2 Accessory and User Replaceable Parts

Consumables and Accessories

Catalog Number		Common Name	Configuration
USA	Non-US		
1706799	1706799	Assay Tips	30 x 120 tips
1706802	1706802	Assay Cups	60 x 60 cups
409041	394246	Sample Cups	1000/bag - 500/bag
1776576	1776576	CalSet Vials	2 x 50 vials
1800507	1800507	Clean-Liner	20 liners/box
1707752	1707752	Sample Disk	1 disk
714-3092	714-3092	Sample Tray	1 tray
741-6560	741-6560	Sample racks (5001-5050)	50 racks
741-6561	741-6561	Sample racks (5051-5100)	50 racks
741-6562	741-6562	Sample racks (5101-5150)	50 racks
741-6563	741-6563	Sample racks (5151-5200)	50 racks
741-6564	741-6564	Sample racks (5201-5250)	50 racks
741-6565	741-6565	Sample racks (5251-5300)	50 racks
741-6566	741-6566	Sample racks (5301-5350)	50 racks
741-6567	741-6567	Sample racks (5351-5400)	50 racks
371044	†	Printer paper	2700 sheets/case
900924	†	Printer ribbon	1 ribbon
741-0919 ☑	1901907 ☑	Spanner Wrench	1 wrench
1812041	1812041	CapTwist	1 each
707422200	707422200	Dry disk cleaning kit	1 disk
1298500	1298500	SysClean	5 x 100 ml bottles
1933159	1933159	SysClean adapter	1 each

☑ Part of accessory kit.

† Refer to your specific printer documentation - not available from BMG.

5.2 Accessory and User Replaceable Parts

Accessory Kit Contents

Catalog Number		Total Number	Common Name
USA	Non-US		
741-0543	741-0543	1	S/R probe tubing (8)
741-0641	741-0641	1	Sipper probe tubing
741-0803	741-0803	1	S/R pipettor tubing (9)
741-0807	741-0807	1	S/R pipettor tubing (1)
741-0808	741-0808	1	S/R pipettor tubing (2)
741-0809	741-0809	1	Rinse station tubing (7)
741-0901	1708716	1	S/R pipettor seal set (4 seals/set)
741-0902	1708724	1	Sipper pipettor seal set (4 seals/set)
714-0903	1709402	1	S/R probe seal set (2 seals/set)
741-0904	741-0904	1	3.2A fuse set (3 fuses/set)
741-0905	741-0905	1	5.0A fuse set (3 fuses/set)
741-0906	741-0906	1	0.5A fuse set (1 fuse/set)
741-0908	741-0908	1	1.0A fuse set (1 fuse/set)
714-0909	714-0909	1	Sipper probe seal set (2 seals/set)
741-0919	1901907	1	Spanner wrench
741-0966	741-0966	1	Sipper pipettor tubing
741-0969	741-0969	1	Measuring cell tubing
741-1610	741-1610	2	Pinch valve tubing
741-1775	741-1775	1	S/R probe tubing (465)
741-1778	741-1778	1	S/R probe tubing (510)